ABSTRACT BOOK

Organised by:

Supported by:

2nd Fragility Fracture Network
Asia Pacific Regional Congress 2024

FFNAP

13th - 15th June 2024

Nexus, Connexion Conference & Event Centre - CCEC, Kuala Lumpur

20 MMA CPD POINTS

HRDCORP CLAIMABLE

A GLOBAL NETWORK FOR NATIONAL CHANGE

fragilityfracturecongress.com

2nd Fragility Fracture Network
Asia Pacific Regional Congress 2024

FFNAP

Best Oral Presentation Award Finalist

Oral ID	Area of Interest	Title	Authors
OF01	Acute Management of Fragility Fractures	Complication Profile Of Hip Fracture Patients Treated With Internal Fixation	**En Lin Goh** Png ME, Metcalfe D, Cook J, Costa ML
OF02		Pre-Operative Anemia And Hyponatremia Increase The Risk Of Mortality In Elderly Hip Fractures	**Vijay Sharma** Farooque K, George J
OF03	Policy or Practice Changes	The Developing Of FFN Japan: Past, Present, And Future	**Noriaki Yamamoto** Sawaguchi T, Matsushita T, Katoh N
OF04		From Awareness To Action: Unveiling Knowledge, Attitude And Practices In Fragility Fractures And Secondary Prevention	**Alvina Amin** Moiz A, Ali S, Hooda K
OF05	Secondary Prevention of Fragility Fractures	Vitamin D [25(OH)D] Serum Concentration Level Among Filipino Postmenopausal Women With Proximal Femur Fractures: A Single-Center Study From The Philippine Orthopedic Center	**Carlos Hernandez Acuña** Langit M, Brabante AM

COMPLICATION PROFILE OF HIP FRACTURE PATIENTS TREATED WITH INTERNAL FIXATION

[1]Goh, EL; [2]Png ME; [1]Metcalfe D; [3]Cook J; [1]Costa ML

1. *Oxford Trauma and Emergency Care, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom*
2. *Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, United Kingdom*
3. *Oxford Clinical Trials Research Unit, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom.*

INTRODUCTION:
In recent years, there has been a trend towards the use of cephalomedullary nail (CMN) over sliding hip screw (SHS) for the treatment of trochanteric fractures, despite the lack of good quality evidence supporting either implant, and higher costs of CMN. This study aims to describe and compare the complication risks between SHS and CMN fixation.

MATERIALS & METHODS:
The World Hip Trauma Evaluation (WHiTE) study is a multi-centre, prospective cohort study that enrolled patients age ≥60 years who received operative treatment for their hip fracture. Patients were prospectively followed up for 120 days after surgery. We report the cumulative incidence of each complication and comparisons between the study groups.

RESULTS:
A total of 8,187 patients who had a SHS (*n* = 5,544) or CMN (*n* = 2,643) were included in the analysis. For surgery-specific complications, CMN had higher risks of fixation failure (HR: 1.44); peri-implant fracture (HR: 4.73); revision surgery for fixation failure and peri-implant fracture (HR: 1.84); re-operation for infection (HR: 1.58); and surgical site infection (HR: 1.39) compared to SHS. For general complications, CMN had higher risks of blood transfusion (HR: 1.59); deep vein thrombosis (HR: 1.47); and pulmonary embolism (HR: 1.42); and similar risks of acute kidney injury (HR: 1.03); cerebrovascular accident (HR: 0.86); lower respiratory tract infection (HR: 0.96); myocardial infarction (HR: 0.67); and urinary tract infection (HR: 0.92) compared with SHS.

DISCUSSIONS:
In our study, we observed higher risks of surgery-specific complications with CMN compared to SHS. Internal fixation with CMN caused one additional re-operation per 112 patients, one additional peri-implant fracture per 200 patients, and one additional deep SSI per 250 patients. It is important to consider that CMN are typically used for more complex trochanteric fractures in some hospitals in the United Kingdom, which may explain the higher rates of these complications.

CONCLUSION:
CMN confers a higher risk of surgery-specific complications compared to SHS, which may be due to the use of CMN for more complex trochanteric fractures. For patients with stable fracture configurations, the SHS is likely to offer better value-based care.

REFERENCES:
1. Goh EL et al. Complications following hip fracture: Results from the World Hip Trauma Evaluation cohort study. Injury. 2020.

PRE-OPERATIVE ANEMIA AND HYPONATREMIA INCREASE THE RISK OF MORTALITY IN ELDERLY HIP FRACTURES

Jaiben George, Kamran Farooque, Vijay Sharma,
Department of Orthopedic Surgery, AIIMS, New Delhi, India

INTRODUCTION:
Pre-operative assessment is routinely performed for all hip fractures, and include a thorough clinical examination and multiple pre-operative tests. While abnormalities are often detected in many tests, they have varied effect on mortality. The purpose of the study was to assess the prevalence and impact of these abnormal tests and comorbidities.

MATERIALS & METHODS:
This was a prospective study of 283 consecutive hip fracture patients aged above 50 years admitted in a major trauma hospital from February 2019 to December 2019. The prevalence of abnormalities in the following tests were assessed: chest x-ray, electrocardiogram, complete blood count, serum electrolytes, renal function test, prothrombin time/international normalized ratio, and serum bilirubin. Also, presence of comorbidities were recorded. Mortality within 90 days of admission was assessed.

RESULTS:
91.5% (N= 259/283) of the patients had at least one abnormal investigation. The most common abnormal investigation was anemia (70.3%, N= 199/283), followed by deranged sodium (36.4%, N= 103/283). 17.7% (N= 50/283) of the patients had at least one new comorbidity diagnosed after admission. The most common newly diagnosed comorbidity was hypertension (10.6%, N= 30/283). Anemia (p=0.044), deranged sodium (p=0.002), raised urea (p=0.018), raised creatinine (p=0.002), renal disease (p=0.015), neurological diseases (p=0.024), and charlson comorbidity index (p=0.004) were associated with increased mortality in multivariate analysis.

CONCLUSION:
Pre-operative hemoglobin, sodium, urea, and creatinine were the most important tests influencing mortality, and derangements of these should therefore be carefully evaluated and managed. Hip fracture care pathways should focus on correction of these abnormalities.

Investigation	Odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Anemia	5.95 (1.38-25.75)	0.017	4.60 (1.04-20.38)	0.044
Severe anemia	3.09 (1.04-9.17)	0.042	2.67 (0.86-8.26)	0.089
Abnormal TLC	0.36 (0.08-1.58)	0.176	0.34(0.07-1.51)	0.155
Thrombocytopenia	0.93(0.37-2.29)	0.869	1.05 (0.41-2.66)	0.922
Abnormal INR	1.26(0.51-3.13)	0.623	1.27(0.50-3.25)	0.613
Deranged sodium	4.72 (1.98-11.23)	<0.001	3.98 (1.64-9.68)	0.002
Deranged potassium	1.22(0.39-3.76)	0.732	1.13(0.35-3.63)	0.841
Raised Urea	3.51 (1.54-8.01)	0.003	2.50(1.20-7.00)	0.018
Raised Creatinine	4.81 (2.00-11.57)	<0.001	4.94(1.84-13.27)	0.002
Raised Bilirubin	0.25 (0.03-1.90)	0.182	0.33 (0.04-2.60)	0.294
Abnormal ECG	1.50(0.66-3.38)	0.330	1.15(0.49-2.71)	0.744
Abnormal CXR	2.40 (0.98-5.89)	0.056	2.27(0.89-5.82)	0.087

CI- Confidence Interval, TLC- Total Leukocyte Count, INR- International Normalized Ration, ECG-electrocardiogram, CXR- Chest X-ray

Table 1: Influence of abnormal investigations on 90-day mortality

Comorbidity	Odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Any comorbidity	6.06 (1.40-26.22)	0.016	5.45 (1.22-24.02)	0.026
CCI score	1.50(1.13-2.01)	0.006	1.61 (1.16-2.21)	0.004
Age-adjusted CCI*	1.71(1.03-2.84)	0.037	1.68 (1.02-2.78)	0.043
Number of comorbidities				
0	Ref		Ref	
1	5.37 (1.15-24.97)	0.032	4.86 (1.01-23-34)	0.048
2	7.10 (1.50-33.66)	0.013	6.41(1.31-31.33)	0.022
>2	5.99 (1.04-34.60)	0.045	5.21 (0.87-31.14)	0.070
Hypertension	1.49(0.67-3.32)	0.325	1.27(0.55-2.93)	0.575
Uncomplicated diabetes	1.19(0.45-3.11)	0.722	1.25(0.46-3.39)	0.667
Chronic lung disease	1.94 (0.68-5.55)	0.217	1.87(0.63-5.57)	0.263
Cerebrovascular accident	1.59 (0.44-5.81)	0.478	1.37 (0.35-5.34)	0.648
Other neurological diseases	4.30 (1.04-17.73)	0.043	5.84(1.26-27.13)	0.024
Complicated Diabetes	2.75 (0.54-13.98)	0.222	3.14 (0.58-16.98)	0.184
Tumour	1.15 (0.14-9.60)	0.895	1.16 (0.13-10.28)	0.893
Dementia	1.32 (0.16-11.19)	0.796	1.02(0.11-9.21)	0.984
Moderate or severe renal disease	6.08(1.37-26.99)	0.018	7.74(1.48-40.39)	0.015
Cardiac arrythmia	3.23(0.62-16.84)	0.165	2.83(0.46-17.41)	0.261
Congestive Heart Failure	1.87(0.21-16.61)	0.575	2.58(0.27-24.82)	0.411
Hemiplegia	3.14 (0.32-31.29)	0.329	3.64(0.31-42.31)	0.303
Depression	4.73(0.41-53.96)	0.211	4.21(0.33-53.64)	0.269
Metastasis	9.5 (0.57-156.39)	0.115	13.82 (0.76-258.67)	0.079

*For age-adjusted CCI, age was not included in the multivariate analysis reporting adjusted odds ratio. CI- Confidence Interval, CCI- Charlson Comorbidity Index

Table 2: Influence of comorbidities on 90-day mortality

THE DEVELOPING OF FFN JAPAN: PAST, PRESENT AND FUTURE

Noriaki Yamamoto[1], Takeshi Sawaguchi[2], Takashi Matsushita[2], Narutaka Katoh[3],
1. *Department of Orthopedic Surgery, Niigata Rehabilitation Hospital, Japan*
2. *Trauma Reconstruction Center, Shinyurigaoka General Hospital, Japan*
3. *Department of Orthopedic Surgery, Southern Tohoku General Hospital, Japan*

INTRODUCTION:
Despite the immense burden of fragility fractures, current estimate s suggest that almost one quart r of a million patients sustain a hip fracture due to osteoporosis in Japan each year. The purpose of this paper, we describe the history and current status of FFN-Japan an d demonstrate the project to establish the JNHFD, engage with government to develop an d launch the hi p fracture reimbursement scheme.

MATERIALS & METHODS:
Fragility Fracture Network-Japan (FFN-Japan) launched the Japan National Hip Fracture Database (JNHFD) in 2017 started with only eight hospitals with establishing as a nonprofit organization in order to create the optimal fragility fracture care system in Japan. JNHFD increased 16 hospitals until the end of 2020, and registered 4271 patients in total. At the same time, FFN-Japan invited officials from the Japanese Ministry of Health, Labor and Welfare (MHLW) to participate in round table meetings to discuss the data collected in the JNHFD and to consider opportunities for nationwide improvement in hip fracture care.

RESULTS:
In April 2022, the Central Social Insurance Medical Council of the Japanese MHLW announced a new reimbursement scheme for hip fracture care including two key components: Early surgery (within 48 hours from injury) and secondary fracture prevention. Also Japanese health ministry required the hip fracture patients were registered to FFN-Japan NHFD. The new reimbursement scheme of hip fracture care in Japan provided major improvements on acute multidisciplinary care and post-fracture care with secondary fracture prevention. After a big policy change updated in April of 2022, FFN-Japan produced the big hospitals community and huge database with 550 hospitals which treat hip fracture patients.

DISCUSSIONS:
To overcoming fracture care gap, The Japanese FLS reimbursement scheme has been updated as of April 1st, 2022. This new scheme will provide major improvements to post-fracture care and the prevention of secondary fractures. It includes the following two key elements: emergency geriatric care and operation within 48 hours after fracture. New scheme of hip fracture care model may create and spread across Japan due to the policy changes from now on.

CONCLUSION:
FFN-Japan played a key role on these policy changes to the health system by means the close collaboration and ongoing communication with the government.

REFERENCES:
1. Yamamoto N et al., Fragility Fracture Network-Japan: The challenge of establishment of a national hip fracture database and successful achievement of nationwide health system change for hip fracture care in Japan. Injury 2024 in press

FROM AWARENESS TO ACTION: UNVEILING KNOWLEDGE, ATTITUDE AND PRACTICES IN FRAGILITY FRACTURES AND SECONDARY PREVENTION

Ali, S; Moiz, A; Amin, A; Hooda, K
Division of Nursing Service; Aga Khan University Hospital, Karachi, Pakistan

INTRODUCTION:
Primary fragility fracture is expected to occur in one in two women and one in five males over the age of fifty. To raise the awareness among the nurse and allied health group working in one of the tertiary care hospitals, the core team including subject experts was formed to focus on altering and spreading knowledge; modifying perceptions of the issue; and developing practical policies for successful execution.

MATERIALS & METHODS:
The study was a cross-sectional questionnaire-based study involving nurses and allied health care professionals working in a tertiary care hospital in Pakistan. A structured questionnaire (15 questions) was prepared based on the literature reviews to assess knowledge, Attitude, and practice (KAP) regarding fragility fractures, prevention for secondary fractures and rehabilitation.

The Pre and Post assessment was conducted in the last session of the series of the workshop which is Strengthening Bones health: Nurses Contribution. The session was attended by 46 participants. The study participants were asked to fill KAP pretest questionnaire followed by interactive educational intervention and post-test questionnaire.

RESULTS:
Participants' knowledge, attitudes, and practices related to fragility fractures, secondary prevention, and rehabilitation had significantly improved, according to pre-and post-workshop assessments. The graphical representation of the pre and post tests are as follow:

Workshops	# of Participants
Falls and secondary prevention	40
Comprehensive geriatric assessment: Nursing practice	24
Orthogeriatric nursing in emergency and perioperative inpatient settings	45
Strengthening Bones health: Nurses Contribution	46

Figure 1: Number of Participants and workshops conducted.

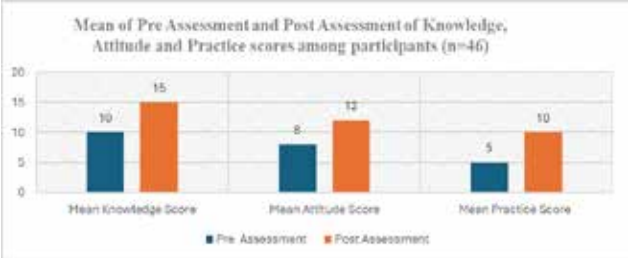


Figure 2: Difference between pre and post test

DISCUSSIONS:
The improvement in pre and post KAP scores highlights how beneficial educational interventions are for improving comprehension and practice readiness. Workshops encouraged active participation, fostering collaboration and knowledge sharing among healthcare professionals for comprehensive care.

CONCLUSION:
The study's conclusions highlight the value of educational initiatives in improving healthcare providers' ability to properly treat fragility fractures. Through focused training, nurses and other health professionals showed considerable gains in their comprehension of interdisciplinary teamwork, rehabilitation, and the prevention of fragility fractures.

REFERENCES:
1. Jehle-Kunz S, Häuselmann HJ, Keschawarzi M, Lamy O, Luzuy F, Marcoli N, Meier C, Uebelhart B, Wiedersheim P. (2022). Risk Factors, Manifestation, and Awareness of Osteoporosis among Patients of Various Specialists in Switzerland: Results of a National Survey. Healthcare (Basel). 3;10(2):295. doi: 10.3390/healthcare10020295.

2. Singer A, McClung MR, Tran O, Morrow CD, Goldstein S, Kagan R, McDermott M, Yehoshua A. (2023) Treatment rates and healthcare costs of patients with fragility fracture by site of care: a real-world data analysis. Arch Osteoporos. 11;18(1):42. doi: 10.1007/s11657-023-01229-7.

VITAMIN D [25(OH)D] SERUM CONCENTRATION LEVEL AMONG FILIPINO POSTMENOPAUSAL WOMEN WITH PROXIMAL FEMUR FRACTURES: A SINGLE-CENTER STUDY FROM THE PHILIPPINE ORTHOPEDIC CENTER

[1]Acuña, Carlos MD, [2]Langit, Mickhael, [3]Brabante, Allan Michael

1. *Department of Orthopedic Surgery, Philippine Orthopedic Center, Maria Clara, Quezon City, Philippines*

INTRODUCTION:

Fragility fractures commonly occur among patients with osteoporosis, and they are considered an important public health issue. Low serum 25(OH)D levels are a risk factor for hip fracture.

MATERIALS & METHODS:

This is a cross-sectional analytical research study conducted at the Philippine Orthopedic Center from March 2022 to March 2023. This study determined the Serum concentration of 25(OH) D level in a 60 – 100-year-old Postmenopausal Women in a Philippine Orthopedic Center with proximal femur fracture.

RESULTS:

Serum concentrations of Vitamin D 25(OH)D with an overall mean and standard deviation of 26.7±8.7 ng/mL, with a median of 25.1 ng/mL and an interquartile range (IQR) of 21-32.1 ng/mL. The frequency distribution of 25(OH)D levels in the entire sample showed that 69.6% of women had concentrations below 30 ng/ml, 26.4% of women 30-40 ng/ml and 4.0% of women above 40 ng/ml. These results suggest that as the serum concentration of Vitamin 25(OH)D decreases, the risk of hip fractures and OSTA scores increase.

DISCUSSIONS:

This study highlights the fact that most of the patients who sustain fractures are caused by a fall from standing height (96.4%) or a slip in the bathroom or wet floor. This conclusion merits special attention since it should be the focus of efforts designed to avoid fragility fractures in the senior population. To reduce the risk of falls in the home, family members and caregivers should pay particular attention to the older population.

CONCLUSION:

Overall, the results suggest that a large proportion of postmenopausal women in this sample had insufficient levels of Vitamin D, which may have implications for bone health and other health outcomes.

	Mean ± SD	Median (IQR)	<30	30-40	>40
			Frequency (%)		
Overall	26.7±8.7	25.1 (21-32.1)	174 (69.6)	66 (26.4)	10 (4.0)
By age					
60 – 64 (30)	26.4±7.6	26.7 (21-32.1)	21 (70)	8 (26.7)	1 (33.3)
65 – 69 (48)	28.3±10.2	27.5 (21-34.4)	28 (58.3)	17 (35.4)	3 (6.3)
70 – 74 (60)	25.9±7.6	24.6 (20.8-30.5)	44 (73.33)	14 (23.3)	2 (3.33)
75 – 79 (45)	25.5±8.2	24.7 (20-29.7)	36 (80)	8 (17.8)	1 (2.22)
80 – 84 (40)	28.7±9.3	27.1 (23.9-33.5)	25 (62.5)	14 (35.0)	1 (2.5)
85 – 89 (25)	25.1±9.1	23.9 (19.8-30.0)	18 (72.0)	5 (20.0)	2 (8.0)
≥90 (2)	20.5±2.1	20.5 (19-21.9)	2 (100)	0	0
With Vitamin D treatment					
No (187)	26.3±.9	25 (20-32.1)	131 (70.1)	50 (26.74)	6 (3.21)
Yes (63)	27.8±7.8	27 (22-33)	43 (68.25)	16 (25.4)	4 (6.35)
Early menopause					
No (209)	26.9±8.8	25.4 (21.7-32.1)	146 (69.9)	55 (26.32)	8 (3.83)
Yes (41)	25.6±8.1	23.3 (19.6-32.1)	28 (68.29)	11 (26.83)	2 (4.88)
By BMI					
<18.5 (38)	25.9±6.1	26.9 (20.1-31.4)	27 (71.05)	11 (28.95)	0
18.5-24.9(141)	26.4±9.6	25.0 (21.0-30.7)	102 (72.3)	32 (22.7)	7 (4.96)
25.0-29.9 (51)	27.6±8.1	25.5 (22.0-36.0)	33 (64.71)	15 (29.41)	3 (5.88)
≥30 (20)	27.5±7.2	27.6 (21.8-33.7)	12 (60.0)	8 (40.0)	0

Figure 1: Serum concentration of Vitamin 25(OH) D among postmenopausal women, in ng/mL (n=250)

Oral Abstract List

Oral ID	Title	Authors
Acute Management of Fragility Fractures		
OP01	Prevalence Of Complications In Older Adults After Hip Fracture Surgery: A Systematic Review And Meta-Analysis	**En Lin Goh** Khatri A, Costa AB, Ting A, Steiner K, Png ME, Metcalfe D, Cook J, Costa ML
OP02	Hip Fragility Fractures: A Retrospective Audit In Universiti Malaya Medical Centre	**Khairul Ameen Mohamad Sabri** Khor HM, Ong T
OP03	Outcome Analysis Of Vertebroplasty In Osteoporotic Vertebral Fractures	**Vishnu Senthil**
OP04	Association Of Charlson Comorbidity Indices (CCI) With Fracture-Related Complications And Factors Affecting In-Hospital Mortality In Elderly Patients With Fragilty Hip Fractures In Hospital Seberang Jaya	**Tan Shin Wuei** Keng JN, Alan Ch'ng, Yap LC, Muhd Fikri, Hafizah, Adilah, Saviana, Mohd Harris, Chin CJ
OP05	Perioperative Interventions To Improve Early Mobilisation And Physical Function After Hip Fracture	**Mitchell Sarkies** Testa L, Carrigan A, Roberts N, Gray R, Sherrington C, Mitchell R, Close JCT, McDougall C, Sheehan K
OP06	Fracture Liaison Service: A Game Changer For Older Persons With Hip Fractures	**Malarkodi Suppamutharwyam** Chong EGM
OP07	Medical Comorbidities And ASA Grades In Hip Fracture Patients In Brunei Darussalam.	**Sanjeev Tripathi** Yakob AH, Pande K
OP09	Falls Among Hospitalized Patient And Orthopaedic Injuries	**Mohd Firdaus Norhisam** Zunaidi F, Ramli R, Ramli F, Chong EGM
OP10	A Study On The Incidence Of Raised Troponin In Hip Fracture Patients And Their Outcomes After Surgery	**Chong Shwen Nee** Loh PS, Khor HM
OP11	Does Timing Of Surgery Matter In Neck Of Femur Fractures?	**Sarbhjit Singh Lakha Singh** Subramaniam SR, Palaniappan SP, Theveraja KD, Ho JPY, Ganthel K
OP12	Is The Tip-Apex Distance A Reliable Predictor Of Implant Failure In Surgical Fixation Of Femoral Neck Fractures With The Synthes Femoral Neck System (FNS) Device?	**Teddy Cheong Yao Wen** Heng C, Wong MK
OP13	Factors Affecting Choice Of Arthroplasty In The Treatment Of Geriatric Neck Of Femur Fractures	**Sanjay Raj Subramaniam** Palaniappan SP, Theveraja KD, Lakha Singh SS, Ho JPY, Ganthel K
OP14	Bridging Gaps In Care: A Comprehensive Review Of Hip Fracture Care In A Tertiary Hospital In Sarawak	**Ting Lee Yee** Ling JN, Chuah ABS

Oral Abstract List

Oral ID	Title	Authors
Acute Management of Fragility Fractures		
OP15	Insights Into Hospitalised Fracture Incidence Among Octogenarians: Longitudinal Shifts In Risk From LiLACS NZ Cohort Study.	**Catherine J. Bacon** Moyes SA, Teh R, Hikaka J, Kerse N
OP16	A Salvage Proximal Femur Replacement Of Failed Intramedullary Nails In Elderly Patient: A Case Report	**Mohd Hafizuddin Ahmad Sabri** M Azhar A
OP17	Comparison Between Senior And Junior Surgeons Performing Arthroplasty In Geriatric Neck Of Femur Fractures	**Sangitaa P.Palaniappan** Theveraja KD, Subramaniam SR, Lakha Singh SS, Ho JPY, Ganthel K
OP18	Pre Operative Nutritional Status Among Geriatric Neck Of Femur Fractures Treated With Arthroplasty	**Khanchana Devi** Lakha Singh SS, Palaniappan SP, Subramaniam SR, Ho JPY, Ganthel K
OP19	Analgesic Self-Medication By Hip Fracture Patients: An Overlooked Risk Factor For Morbidity?	**Tashfeen Ahmad** Abdul MZ, Mohib Y, Zubairi AJ, Sawayba AS, Shaikh AS
OP20	Has Fracture Pattern Of Femoral Trochanteric Fracture Changed During These 10 Years? -3D-CT Evaluation-	**Etsuo Shoda** Sasaki T, Akino H, Kanayama C
OP21	Functional Outcomes Relationship With Early Fixation Of Intertrochanteric Fracture Using Dynamic Hip Screw	**Basyar Mohamad Nazri** Suhana SB
OP22	The Association Of Preoperative Delirium And Hip Fracture Outcomes	**Loh Ai Yun** Yap HK, Tiong WJ, Lim SC, Looi JS, Ng CC, Lim HT, Yap SY
OP23	Single-Center Comparative Study Pre And Post Orthogeriatric Comanagement	**Shota Nakagawa** Sawaguchi T, Matsushita T
OP24	Safety Outcomes In Patients Treated With Denosumab In Outpatient Setting, Hospital Kuala Lumpur	**Nur Syafiqah Mohd Jeffri** Abdul Halim H, Tiew WP, Makpol FI, Chong EGM
OP25	Short Term Outcome Of Cemented Austin Moore Arthroplasty In Octogenarians With Frailty Index Of 5 And Parker Mobility Score Less Than 6 For Femoral Neck Fractures In Resource-Constrained Settings	**Julius Bryan Abesamis** Diego TPJ, Tabu I, Bernardo P
OP26	Preoperative Deep Vein Thrombosis In Elderly Patients With Hip Fractures: The Risk And Prevalence	**Muhammad Rajaei Ahmad Mohd Zain** Mohd Khazran H, Shaifuzain AR, Amran AS
OP27	Clinical Outcomes In Osteoporotic Patients Treated With Bisphosphonates In Outpatient Setting, Hospital Kuala Lumpur	**Faizatul Iman Makpol** Abdul Halim H, Tiew WP, Mohd Jeffri NS, Chong EGM

Oral Abstract List

Oral ID	Title	Authors
Policy or Practice Changes		
OP28	Assessing The Impact Of Chronic Kidney Disease (CKD) And Type 2 Diabetes Mellitus (T2 DM) On Trabecular Bone Score (TBS) In Postmenopausal Women With Osteoporosis: Pre And Post Treatment Analysis	**Panukorn** Yoddoi S, Teerapat T, Ong-Art P
OP29	Predictors For Excellent Outcome After Hip Replacement For Elderly Femoral Neck Fracture	**Sunsern Tatiyaworakulwong** Panukorn P, Pattarawan W, Ong-Art P
OP30	Falls, Fractures And Frailty In Older Persons With Atrial Fibrillation On Non-Vitamin K Antagonist Oral Anticoagulants (NOACS)	**Zheng Yang Lee** Tan KM, Boey VWF, Goh SSL, Cheah WC, Kunaseelan NK
OP31	Independent Walking Disability After Fragility Hip Fractures: A Prognostic Factors Analysis Of A Retrospective Cohort Study.	**Praphan Chanthanapodi** Thammata N, Laoruengthana A, Jarusriwanna A
OP32	Exploring The Nexus Between Reproductive Factors And Osteoporosis Risk In Postmenopausal Women: Insights From Studies In Malaysia	**Mohd Ariff Sharifudin** Nordin SH, Mohamed SZ, Taib MNA, Kamudin NAF
OP33	Retrospective Analysis Of Characteristics And Outcomes Of Patients With Parkinson Disease Admitted To An Orthogeriatric Unit With A Fracture Of The Femur. A Missed Opportunity To Care?	**Sithira Senevirathne** Shah K, Ralhan S
OP34	Outcomes And Surgery Timing For Elderly Fragility Hip Fracture In A District Hospital, Malaysia	**Sam Chi Xuan** Ameera N, Sharru S, Siti NW, Khartik K, Ong CS, Mashayati M
OP35	Which Performance Indicators Are Used Globally To Evaluate Hip Fracture Care And How Are They Defined? A Mixed Methods Systematic Review	**Matthew Costa** Paes VM, Ting A, Masters J, Paes M, Graham S
OP36	Outcomes Of Orthogeriatric Care For Major Non-Hip Lower Limb Fragility Fractures	**Julia Ng Poh Hwee** Chua I, Ramason R, Koo WHW, Ku LT, Tai WLS
OP37	Determinants Of Femoral Bone Cortical Thickness (FBCT) In Patients With Hip Fracture (HF)	**Kavya E. Baby** Srikusalanukul W, Fisher A
OP38	Factors Associated With Delayed Surgery For Older Hip Fracture Patients	**Lim Sue Chee** Loh AY, Yap HK, Looi JS, Tiong WJ, Ng CC, Lim HT, Miss Yap SY
OP39	The Utility And Necessity For Radiographic Follow Up After Arthroplasty For Geriatric Neck Of Femur Fractures	**Koh Jun Rui Don** Yeo KSA, Kon CKK, Moo IH

Oral Abstract List

Oral ID	Title	Authors
Policy or Practice Changes		
OP40	Is Pre-Fracture Frailty As Determined By Clinical Frailty Scale (CFS) Associated With Hip Fracture Outcomes?	**Yap Han Kee** Loh AY, Tiong WJ, Looi JS, Lim SC, Ng CC, Lim HT
OP41	Falls, Fall-Related Injuries And Physical Activity: Population-Based Findings Informing Policy And Practice	**Wing S Kwok** Khalatbari-Soltani S, Dolja-Gore X, Oliveira J, Byles J, Sherrington C
OP42	Hip Fragility Fractures In A Tertiary Care Hospital: Where Are We Now?	**Muhammad Akmal Rajuli** Anis Hazira ZA, Abdul Hafiz MNH, Han CS , Mohd Iqbal HS
Rehabilitation		
OP43	"Path To Mobility": Hip Fracture Rehabilitation Journey Of A Geriatric Patient In A District Hospital	**See Heng Jee** Wan Mohammad Akbar SH, Yew CK, Sahadeevan Y
OP45	Clinical Outcomes Of Orthogeriatric Femoral Neck Fracture Patients Who Undergo Hip Replacement Via Anterolateral Hardinge Approach Without Post-Operative Hip Dislocation Precautions In The Philippine General Hospital	**Jose Mari Salvacion Dychioco** Tabu, IA
OP46	Beyond The Break: Lived Experiences Of Older Adults Living With Fragility Fractures	**Syarifah Nora Syed Husli** Jamil NA, Mokhtar SA, Leong JF, Chong EGM, Singh DKA
OP47	FLS Effectiveness In Patients With Hip Fracture Surgery: Home Based Interactive Telecommunication	**Kang Jiyoung** Beom J, Lim JY

Oral Abstract List

Oral ID	Title	Authors
Secondary Prevention of Fragility Fractures		
OP48	Evaluating Barriers Of Prescribing Bone Protection Medications Following Hip Fracture In North Shore Hospital	**Min Yee Seow** Alix E, Musa, H
OP49	Regional Differences In Risk Of Secondary Fractures In Patients Following Hip Fracture: Cox's Proportional Hazard Model	**Yonghan Cha** Kim SH
OP50	Predictive Factors For Assessing Physical Performance And Functional Recovery Following Fragility Hip Fracture Surgery: A Prospective Cohort Study.	**Saniata Luarngjindarat** Ong-Art P, Panukorn P
OP51	Prevalence Of Sarcopenia And Outcome After Surgery In Elderly Hip Fracture: A Prospective Cohort Study	**Ong Art Phruetthiphat** Ussadamongkol T, Songpatanasilp T
OP52	Comparative Assessment Of Short-Term Recovery And Functional Outcomes In Elderly Patients Undergoing PFNA Fixation For Intertrochanteric Fractures With And Without CKD: A Prospective Cohort Study	**Suppakit Paiboonrungroj** Pinijprapa P, Satravaha Y, Phruetthiphat O
OP53	Evaluation Of The World Falls Guidelines Algorithm In Predicting Falls Within The AGELESS MELoR Cohort	**Soo Jin Sherry** Maw PT, Sumaiyah M, Devinder Kaur AS, Nor'Izzati S, Kiirtaara A, Xiang JX, Abu Bakar AM, Kalavathy R, Khor HM
OP54	Risk Factors Associated With Falls And Subsequent Hip Fractures Among Elderly In A Developing Country: A Case Control Study	**Marij Zahid** Ahmad T, Azam I, Naseem M, Noordin S, Kadir M
OP55	Evaluating Osteoarthritis And Bone Mineral Density In Elderly Hip Fracture Patients	**Korawish Mekariya** Adulkasem N, Vanitcharoenkul E, Chotiyarnwong P, Unnanuntana A
OP56	Metabolic And Bone Mineral Density Evaluation Of Elderly Patients With Fragility Hip Fractures	**Mark Anthony Sandoval** Young JA
OP57	Optimising Secondary Prevention Of Osteoporotic Fracture: A Project Using IV Zoledronate As First-Line Treatment	**James Ng** Ong TY
OP58	Relationship Between American Society Of Anesthesiologists (ASA) Score With Complications And In Patient Mortality After Hip Fracture In The Elderly	**Saviana Jaya Sharmila** Tan SW, Keng JN, Ch'ng A, Adilah H, Muhd Fikri, Yap LC, Mohd Harris, Chin CJ
OP59	Evaluating The Orthogeriatric Fracture Liaison Service Of A Government Hospital In The Philippines Based On Key Performance Indicators	**John Ricardo C. Solito** Sandoval MA, Tabu I
OP60	Secondary Fracture Prevention Awareness After Hip Fragility Fracture: A Survey Among The Members Of Indonesian Orthopaedic Association	**Bintang Soetjahjo** Siagian A, Izaak, ZA, Putera HD, Damayanthi ED, Kesuwa W, Septadi RI, Nurikhwan PW, Noor Z

Oral Abstract List

Oral ID	Title	Authors
Secondary Prevention of Fragility Fractures		
OP61	Secondary Fracture Prevention Awareness After Vertebral Fragility Fracture: A Survey Among The Members Of Indonesian Orthopaedic Spine Society – Pedicle Club Indonesia	**Ridma Irsyam Septadi** Iqbal M, Tobing SAL, Sakti YM, Noor Z
OP62	Initiation Of Anti-Osteoporosis Medication, Calcium And Vitamin D Supplementation And Compliance After 6 Months Among Hip Fracture Patients	**Norhafizatul Akma Shohor** Jeyakumar S, Leong JF, Yin MK, Rani RA, Mokhtar SA
OP63	A 6-Year Update On Patient Outcomes Of The University Of The Philippines – Philippine General Hospital Orthogeriatric Multidisciplinary Fragility Fracture Management Model And Fracture Liaison Service	**Patrick Leo Rebato** Abesamis JB, Tabu I
OP64	From Assessment To Adherence: A Review Of Patient Compliance In Preventing Fragility Fracture	**Alvina** Moiz A, Ali S, Meherali S, Hooda K
OP65	The Relationship Between T-Score Of Bone Mineral Densitometry And Fragility Fractures Of The Hip	**Melvinder Singh** Suhana SB
OP66	Evaluating Osteoporosis Treatment Gap Post Fragility Hip Fracture In A Public Tertiary Hospital In Sabah	**Wong Yee Ling** Hwa GMP
OP67	Frailty And Fall Risk Status Of Older Adults In Quezon Province	**Filipinas G. Abundabar** Ferreras ALU, Magsaysay JL, Maranan AD
OP68	The Effect Of Denosumab In Elderly Patients On Bone Density And Fracture Risk	**Tiew Wah Peng** Abdul Halim H, Mohd Jeffri NS, Makpol FI, Chong EGM
OP69	Exploring Bone Mineral Density Screening Patterns In Orthopedic Patients: A Year-Long Analysis At A Leading Malaysian Tertiary Hospital	**Shobah Jeyakumar** Leong JF, Shohor NA, Rani RA, Mokhtar SA
OP70	Knowledge Of Osteoporosis Among Registered Nurses Working In Orthopedic And Traumatology Department In One Of The University Hospital	**Norhafizatul Akma Shohor** Leong JF, Mokhtar SA, Kanapathy T
OP71	Prevalence And Risk Factors Of Osteoporosis Among Postmenopausal Women Of Rural Nepal	**Dipendra Pandey** Basnet S, Pradhananga S, Hamal PK

PREVALENCE OF COMPLICATIONS IN OLDER ADULTS AFTER HIP FRACTURE SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

[1]Goh, EL; [2]Khatri A; [1]Costa AB; [3]Ting A; [4]Steiner K; [5]Png ME; [1]Metcalfe D; [6]Cook J; [1]Costa ML

1. *Oxford Trauma and Emergency Care, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom*
2. *Department of Trauma and Orthopaedics, Stepping Hill Hospital, Stockport NHS Foundation Trust, Stockport, United Kingdom*
3. *Department of Trauma and Orthopaedics, St Helier Hospital, Epsom and St Helier University Hospitals NHS Trust, Surrey, United Kingdom*
4. *Bodleian Health Care Libraries, University of Oxford, Oxford, United Kingdom*
5. *Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, United Kingdom*
6. *Oxford Clinical Trials Research Unit, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom.*

INTRODUCTION:
Older adults with hip fractures are at high risk of experiencing complications after surgery but estimates of the rate of specific complications vary by study design and follow-up period. This systematic review aimed to determine the prevalence of complications in older adults after hip fracture surgery.

MATERIALS & METHODS:
MEDLINE, Embase, CINAHL and CENTRAL were searched until 30th June 2023. Studies were included if they reported prevalence data of complications in an unselected, consecutive population of older adults (≥60 years) undergoing hip fracture surgery.

RESULTS:
A total of 95 studies representing 2,521,300 patients were included. For surgery-specific complications: the 30-day prevalence of re-operation was 2.3%, surgical site infection 1.7%, and deep surgical site infection 1.0%; the 365-day prevalence of prosthesis dislocation was 1.1%, fixation failure 1.8%, and peri-prosthetic/implant fracture 2.2%. For general complications: the 30-day prevalence of acute kidney injury was 1.2%, blood transfusion 25.6%, cerebrovascular accident 0.8%, lower respiratory tract infection 4.1%, myocardial infarction 2.0%, urinary tract infection 7.0%, and venous thromboembolism 2.2%.

DISCUSSIONS:
The prevalence of complications was high. Re-operation rates within the first year were over two times higher than estimates from hip fracture registries and are likely to be more representative of the true real world risk. The prevalence of complications continued to increase throughout the first year after surgery. This is important to appreciate as many of the observational studies of larger hip fracture populations have focused on complications occurring only during the index hospital admission.

CONCLUSION:
Studies reporting complications after hip fracture surgery were generally of low quality. We advocate for routine monitoring of complications in registries and clinical trials, which will improve the quality of evidence. Our findings provide a reference range against which service performance can be benchmarked and can inform power calculations for future studies of interventions in hip fracture.

REFERENCES:
1. Goh EL et al. Complications following hip fracture: Results from the World Hip Trauma Evaluation cohort study. Injury. 2020.
2. Roche JJ et al. Effect of comorbidities and postoperative complications on mortality after hip fracture in elderly people: prospective observational cohort study. BMJ. 2005.
3. Prieto-Alhambra D et al. In-hospital care, complications, and 4-month mortality following a hip or proximal femur fracture: the Spanish registry of osteoporotic femur fractures prospective cohort study. Arch Osteoporos. 2018.

HIP FRAGILITY FRACTURES: A RETROSPECTIVE AUDIT IN UNIVERSITI MALAYA MEDICAL CENTRE

[1]Mohamad Sabri KA; [1]Khor HM; [1]Ong T
1. *Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia*

INTRODUCTION:
Hip fractures pose a significant health problem associated with increased mortality and morbidity. (1) Orthogeriatric service approach will lead to better outcomes and should be the standard of care.

MATERIALS & METHODS:
This is a retrospective cross-sectional analysis of patients ≥65 years diagnosed with hip fragility fractures in Universiti Malaya Medical Centre in 2023. Patient demographics, orthogeriatric and rehabilitation management were reviewed through the electronic medical record.

RESULTS:
246 patients were diagnosed with hip fragility fractures, with 73.6% being female. Mean age on diagnosis was 79.83 years (SD: 6.82). 230 (93.5%) had ≥1 comorbid condition. 233 (94.7%) received inpatient geriatrician review, with 158 (67.8%) reviewed within 24 hours of admission. 66 (26.8%) had a documented frailty assessment, with 44/66 (66.7%) scored CFS 5-8.

83 (33.7%) were assessed for delirium, with 44/83 (53.0%) diagnosed. 226 (91.9%) received surgery, averaging 3.81 days (SD: 3.25) from admission. 60/218 (27.5%) newly-diagnosed patients managed surgically were operated within 48 hours of diagnosis. 56 (24.8%) developed post-operative complications. 20 (8.1%) were managed non-operatively, with 13 (65.0%) developing inpatient complications. 244 (99.2%) received inpatient physiotherapist review, with 207 (84.8%) reviewed within 24 hours of referral. Of those operated, 132 (58.9%) were mobilized within 24 hours of surgery. Length of hospital stay averaged 8.49 days (SD: 6.10). 72 (29.3%) were discharged with extended VTE prophylaxis and 236 (95.9%) with a bone health plan. 30-day readmission rate was 15.4%. 30-day inpatient mortality was 10 patients (4.1%).

DISCUSSION:
Gaps in care were identified through this analysis. Continuous clinical audits are required to monitor patient care performance. Addressing these gaps will translate into better patient outcomes.

CONCLUSION:
This analysis is on hip fragility fracture care in one centre in Malaysia. A nationwide data would allow a better overview of hip fracture care nationally.

REFERENCES:
Curtis EM, Moon RJ, Harvey NC, & Cooper C (2017). The impact of fragility fracture and approaches to osteoporosis risk assessment worldwide. *Bone*, *104*, 29–38.

OUTCOME ANALYSIS OF VERTEBROPLASTY IN OSTEOPOROTIC VERTEBRAL FRACTURES

Vishnu Senthil, Assistant Professor
Government Royapettah Hospital , Chennai

Introduction:
Vertebral body compression fractures result in severe disabling back pain._

Materials and methods:
Prospective study from 2016-2018 with a minimum follow up of 1 year. Patients between 60-85 with acute/sub-acute vertebral compression fracture having failed to respond to medical theraphy for 4-6 weeks were included in study. Exclusion criteria included asymptomatic vertebral fracture improving in conservative medical care, bleeding disorders with platelet less than 50,000 and INR >1.8, local and systemic infection, Bone cement allergy, Disruption of posterior vertebral body with retropulsion into spinal canal, vertebral collapse less than 1/3 rd , poor general health, cutaneous disorders, vertebra plana, primary tumours and secondaries.Outcome was studied with VAS, Oswestry disability score and index was recorded pre-operatively and 24, 48 hrs, 1,3 and 6 month and 1 year post operatively. Radiographic investigation included spinal X-ray AP and Lat views with CT and MRI spine. Under IV sedation and C-ARM, a cutaneous incision was made and cement injected.

Results:
50 patients underwent vertebroplasty and 5 patients were lost in follow up with a mean follow up at 12 months. Statistical analysis included Wilcoxon signed rank test for paired data and Wilcoxon signed rank sum test for un-paired data. P value was significant between pre-operative and post operative scores at 24, 48 hrs,1,3,6 and 12 months in VAS and Oswestry disability score and index. Kyphosis angle was not statistically improved post-operatively. Complications included 1- extravasation anteriorly, 1- extravasation into venous channel, 2- extravasation into needle tract.

Discussion:
VAPOUR study in patients with vertebroplasty less than 6 weeks resulted in better quality of life. Cement is pushed by trochar in cannula to avoid breakage of needle and extravasation when removal of cannula. Perfect technique is necessary for good outcome and avoidance of complications by kallmes et al.

Conclusion:
Selection of patients, proper technique, high viscosity PMMA not more than 3 ml has less complication rate and good functional.

Reference:
Yuan W-H, Hsu H-C, Lai K-L. Vertebroplasty and balloonkyphoplasty versusconservativetreatment for osteoporotic vertebral compressionfractures a meta-analysis. Medicine2016;95(31):e441.

ASSOCIATION OF CHARLSON COMORBIDITY INDICES (CCI) WITH FRACTURE-RELATED COMPLICATIONS AND FACTORS AFFECTING IN-HOSPITAL MORTALITY IN ELDERLY PATIENTS WITH FRAGILITY HIP FRACTURES IN HOSPITAL SEBERANG JAYA

[1]Tan SW, [1]Keng JN, [1]Alan Ch'ng, [1]Yap LC[1] Muhd Fikri [1] Hafizah[1] Adilah [1] Saviana [2] Mohd Harris [3]Chin CJ
1. *Department of Geriatric, Hospital Seberang Jaya, Penang, Malaysia*
2. *Department of Orthopedic, Hospital Seberang Jaya, Penang, Malaysia*
3. *Clinical Research Center, Hospital Seberang Jaya, Penang, Malaysia*

INTRODUCTION:
Fragility hip fractures are common in the older patients, most patients have multiple comorbid illnesses. Studies show that CCI is a consistent dominant factor in predicting short and long-term mortality. [1,2] We hypothesize that a higher CCI portends a higher risk of developing fracture-related complications and in-patient mortality.

MATERIALS & METHODS:
In this retrospective cohort study, we involved 125 patients aged 60 years old and above with fragility hip fractures admitted to Hospital Seberang Jaya between November 1st 2022, and December 31st 2023. Data was collected from medical report. The objective is to investigate the association of CCI with fracture-related complications and factors affecting in-patient mortality.

RESULTS:
In our 125 patients, the mean age was 75.6 years (SD 8.0) (60–94 years old), and the mean CCI of patients was 3.9 (SD 1.0). In our study, the most common fracture-related complications were infection (16.8%, n = 21) and delirium (12.2%, n = 15). The CCI score showed a significant association with infection in hip fracture patients, with a CCI mean score of 4.29 (0.96, p = 0.034). Our in-patient mortality is 7.2% (n = 9). By using logistic regression, venous thromboembolism (VTE), cardiac events and infections showed a statistically significant (p value <0.05) increased risk of in-patient mortality for hip fracture in older patients.

DISCUSSIONS:
According to our study, a CCI score of 4 or more is associated with a higher risk of infection but not with in-patient mortality. Other study showed higher CCI score predicted higher in-patient mortality.[3]
This could be a factor in the study's small sample size. The risk of in-patient mortality increases in older patients with hip fractures after they experience post-fracture complication such as infection, VTE and cardiac event similar to other study [4]. Therefore, older patients with fragility hip fractures who are multimorbid should be referred earlier, and optimally cared for pre and postoperatively.

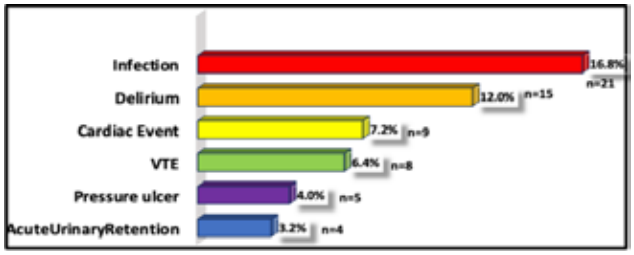


Figure 1: Hip Fracture related complication

	n	CCI Score Mean(SD)	P-value
Thromboembolism event	8	3.38(1.06)	0.14
Cardiac event	9	3.89(1.27)	0.958
Pressure ulcer	5	3.00(1.00)*	0.194[a]
Infection	21	4.29(0.96)	0.034
Constipation	46	4.09(1.00)	0.062
Acute uninary retension	4	4.00(1.41)	0.793
Delirium	15	4.20(1.01)	0.17
In-patient mortality	9	4.00(1.00)	0.687

*Median(IQR)
[a] Mann-Whitney test

Figure 2: Association CCI with fracture related complications and in-patient mortality

In patient mortality	n(%)	Crude OR	(95% CI)	P-value	Adjusted OR	95% CI	P-value
Age		1.07	(0.98,1.17)	0.146			
CCI score		1.16	(0.58,2.33)	0.684			
Thromboembolism	5(55.6)	47.08	(8.23,269.45)	<0.001	19.76	(2.97,131.55)	0.002
Cardiac event	3(33.3)	9.17	(1.83,45.91)	0.007	11.18	(1.41,88.99)	0.023
Infection	6(66.7)	13.47	(3.04,59.65)	0.001	11.31	(1.67,76.63)	0.013
Delirium	3(33.3)	4.33	(0.96,19.60)	0.057			

Figure 3: Factors affecting In-patient mortality

PERIOPERATIVE INTERVENTIONS TO IMPROVE EARLY MOBILISATION AND PHYSICAL FUNCTION AFTER HIP FRACTURE

[1, 2]Sarkies, MN; [3]Testa L; [3]Carrigan, A; [3]Roberts, N; [4]Gray, R; [5, 6]Sherrington, C; [3]Mitchell, R; [7, 8]Close, JCT; [9, 10]McDougall, C; [11, 12]Sheehan, K

1. *School of Health Sciences, Faculty of Medicine and Health, University of Sydney, Australia*
2. *Implementation Science Academy, Sydney Health Partners, University of Sydney*
3. *Australian Institute of Health Innovation, Faculty of Medicine, Health and Human Sciences, Macquarie University*
4. *James Paget University Hospital Foundation Trust, Norfolk, UK*
5. *Institute for Musculoskeletal Health, The University of Sydney and Sydney Local Health District, Australia*
6. *School of Public Health, Faculty of Medicine and Health, The University of Sydney, Australia*
7. *Falls, Balance and Injury Research Centre, Neuroscience Research Australia, Australia*
8. *Prince of Wales Clinical School, University of New South Wales, Australia*
9. *The University of Queensland, Australia*
10. *The Prince Charles Hospital, Metro North Hospital and Health Service, Australia*
11. *Department of Population Health Sciences, School of Life Course and Population Sciences, Kings College London, UK*
12. *Bone and Joint Health, Blizard Institute, Queen Mary University of London, UK.*

INTRODUCTION:

Perioperative interventions may facilitate early mobilisation and improved physical function post hip fracture surgery. This systematic review aimed to determine the effectiveness of perioperative interventions on early mobilisation and physical function after hip fracture.

MATERIALS & METHODS:

Five databases were searched from January 2000 to March 2022. Experimental and quasi-experimental studies were included with hip fracture surgery patients with an average age of 65 years or older. Measures of early mobilisation and physical function during the acute hospital admission were collected. Data were analysed using meta-analysis.

RESULTS:

Twenty-eight studies were included on 8,192 participants across 26 countries (mean age 80 years). Pathways and models of care may increase achievement of early mobilisation (SMD=0.20, 95% CI: 0.01-0.39, I^2=73%) and improve physical function (SMD=0.07, 95% CI 0.00-0.15, I^2=0%) and transcutaneous electrical nerve stimulation analgesia may improve physical function (SMD=0.65, 95% CI: 0.24-1.05, I^2=96%). Pre-operative mobilisation, multidisciplinary rehabilitation, recumbent cycling, and clinical supervision provided unclear benefit. Pre-emptive analgesia, intraoperative periarticular injections, continuous postoperative epidural infusion analgesia, occupational therapy training, and nutritional supplements provided no benefit.

CONCLUSION:

Some perioperative interventions can increase the achievement of early mobilisation and improve physical function after hip fracture surgery.

REFERENCES:

Sarkies M, et al. Perioperative interventions to improve early mobilisation and physical function after hip fracture: a systematic review and meta-analysis, *Age and Ageing*, Volume 52, Issue 8, August 2023, afad154.

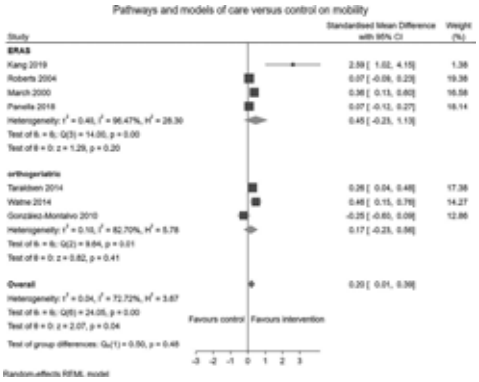


Figure 1: Effect of pathways on mobility

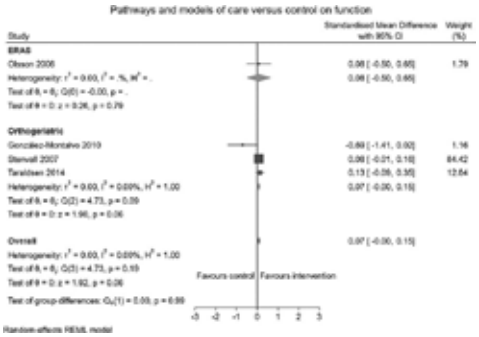


Figure 2: Effect of pathways on function

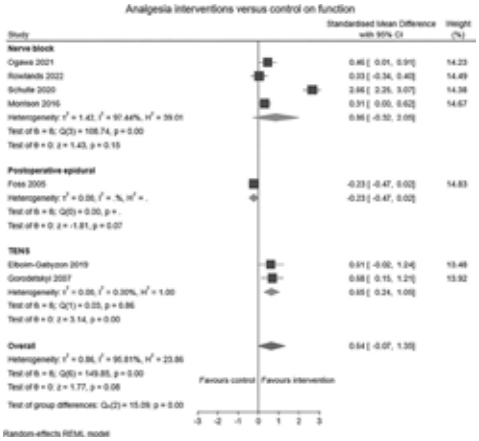


Figure 3: Effect of analgesia on function

FRACTURE LIAISON SERVICE: A GAME CHANGER FOR OLDER PERSONS WITH HIP FRACTURES

[1]Malarkodi Suppamutharwyam; [1]Elizabeth Chong Gar Mit
1. Department of Geriatric Medicine, Hospital Kuala Lumpur, Malaysia

INTRODUCTION:
Hip fractures in older persons strain healthcare systems. We compared patient outcomes before and after implementing Fracture Liaison Service (FLS) to assess their effectiveness in improving patient's care.

MATERIALS & METHODS:
We conducted a retrospective analysis at Hospital Kuala Lumpur, comparing patients' data from 2018 (pre-FLS) to 2019-2023 (post-FLS). We analysed demographics, time to surgery, length of stay, and complication rates for older persons with fragility hip fractures.

RESULTS:
Patient's demographics and co-morbidities remained similar pre- and post-FLS implementation. However, FLS significantly improved surgical rates (79% vs. 60% pre-FLS) and time to surgery (7.21 vs. 9.16 days pre-FLS). Mean length of stay decreased by 3 days (13.56 vs. 16.87 days pre-FLS). Early mobilization within 24 hours of surgery increased (55% vs. 40% pre-FLS). While overall complication rates rose (53% vs. 25% pre-FLS), pressure ulcers decreased, and a small increase in delirium (8.6%) was observed.

DISCUSSIONS:
FLS streamlined surgical care for fragility hip fractures in older persons, leading to shorter surgical wait times and increased early mobilization, likely due to enhanced multi-disciplinary collaboration. It also resulted in more surgeries and shorter length of stay. However, a significant number of patients are not undergoing surgery within 48 hours [1]. This is mainly due to limited availability of operating theatres, and preoperative optimization for complex patients remains a bottleneck. While overall complication rates rose, this could be attributed to more comprehensive assessments by FLS team. Geriatricians' involvement in FLS led to more delirium diagnoses**.** Notably, pressure ulcer rates declined, highlighting the effectiveness of FLS. Our retrospective study suggests that FLS positively impacts outcomes, but logistical challenges persist.

CONCLUSION:
Implementation of FLS demonstrably improved surgical management for fragility hip fractures in older persons. Limited operating theatres availability remains a challenge that needs to be addressed. Future research with larger cohorts and long-term follow-up is warranted to further explore FLS impact on post-discharge outcomes.

REFERENCES:
Lee DJ, Elfar JC. Timing of Hip Fracture Surgery in the Elderly. Geriatric Orthopaedic Surgery & Rehabilitation. 2014;5(3):138-140. doi:10.1177/2151458514537273

Pre - FLS N=83 (15%)	Details	Post - FLS N=477 (85%)
76.41 ± 8.24	**Mean Age**	76.55 ± 8.08
Gender		
21 (25%)	Male	149 (31%)
62 (75%)	Female	328 (69%)
Co-morbid(s)		
65 (78%)	Less than three	380 (80%)
18 (22%)	Three and above	97 (20%)
Complication [p-value = <0.001]		
21 (25%)	Yes	252 (53%)
62 (75%)	No	212 (44%)
0 (0%)	Missing data	13 (3%)
Management [p-value = <0.001]		
50 (60%)	Operated	378 (79%)
33 (40%)	Conservative	99 (21%)
16.87 ± 10.73	**Mean Length of Stay (Days) [p-value = 0.005]**	13.56 ± 8.15
9.16 ± 4.79	**Mean Time to Surgery (Days) [p-value = 0.023]**	7.21 ± 4.59
Operated ≤ 48H [p-value = 0.001]		
1 (2%)	Yes	25 (7%)
33 (66%)	No	268 (71%)
16 (32%)	Missing Data	85 (22%)
Reasons for Delay in Operative Intervention		
34 (68%)	Awaiting operating theatre time	108 (28%)
33 (66%)	Others	56 (14%)
19 (38%)	Awaiting medical stabilization	66 (17%)
10 (20%)	Awaiting orthopedic input	35 (9%)
5 (10%)	Awaiting inpatient bed/ICU bed	26 (6%)
3 (6%)	Financial Issue	26 (6%)
1 (2%)	Unknown	22 (5%)
Mobilized ≤ 24H Post Op [p-value = <0.001]		
20 (40%)	Yes	207 (55%)
30 (60%)	No	92 (24%)
0 (0%)	Missing data	79 (21%)

Table 1: Comparative analysis before and during FLS implementation

MEDICAL COMORBIDITIES AND ASA GRADES IN HIP FRACTURE PATIENTS IN BRUNEI DARUSSALAM

Tripathi Sanjeev, Yakob Abdul Hafiz, Pande Ketan
Orthopaedic Department, Raja Isteri Pengiran Anak Saleha Hospital, Brunei Darussalam

INTRODUCTION:
Hip fractures are associated with significant morbidity and mortality. Various studies have shown an association between mortality and higher ASA grade and comorbidities expressed as Charlson Comorbidity Score.[1,2] The objective of this study was to evaluate the medical comorbidities and ASA grades in hip fracture patients in Brunei Darussalam.

MATERIALS & METHODS:
In a retrospective study of hip fracture patients admitted to a tertiary hospital between 1 Jan 2022 and 31 Dec 2022, electronic medical records were reviewed to record the medical comorbidities and ASA grades. The association between low ASA grade (I, II) and high ASA grade (III, IV) on mortality was analysed.

RESULTS:
A total of 66 patients were admitted with hip fracture during the study period (M:F, 21:45) with mean ± SD age of 74.4 ± 8.6 years. The number of patients with ASA grade were I:2, II:37, III:26 and IV:1. Only 3 patients did not have any comorbidity. The most common comorbidities recorded were Hypertension (n=53), Hyperlipidaemia (n=41), Diabetes (n=27) and 11 cases each with renal, cardiac and neurological conditions. Sixteen patients had at least 2 comorbidities while rest had >2 comorbidities. The 1-year mortality was 11/66 (16.6%). There was no significant association between mortality and low or high ASA grades in this sample.

DISCUSSIONS:
Various preoperative indicators including ASA grade and presence of comorbidities have been recognized to have impact on mortality after hip fracture. In Brunei Darussalam time taken for optimisation of comorbidities has been seen to be a cause for delay in surgery. Though 41% of patients had higher ASA grade, this was not seen to have association with mortality.

CONCLUSION:
A significant number of elderly patients admitted with hip fracture have medical comorbidities in Brunei Darussalam. Larger, prospective study is needed to identify patients at risk of morbidity and mortality early, who will benefit from comprehensive preoperative care to avoid delay in surgery.

REFERENCES:
1. http://doi:10.1093/ageing/afu065
2. https://doi.org/10.1007/s00198-023-06942-0

FALLS AMONG HOSPITALIZED PATIENTS AND ORTHOPAEDIC INJURIES

MF NorHisham, F. Zunaidi, R Ramli, F Ramli, EGM Chong
Geriatric Unit, Hospital Kuala Lumpur

INTRODUCTION

Hospital inpatient falls have emerged as a prominent area of concern, presenting a complex challenge to healthcare systems. Falls can lead to considerable morbidity especially when patient sustains a fracture. Despite efforts, there remains a lack of consensus on the most effective strategies for reducing inpatient falls, thereby posing a threat to lives and increase in morbidity.

MATERIALS & METHODS:

This is a retrospective cohort analysis to examine all inpatient falls that occurred in a tertiary hospital over two years. All the falls occurred were identified and classified into harm categories, with a particular focus on orthopaedic injuries.

RESULTS:

A total of 602 incidents of in-patient falls were documented. Among these, 10 patients experienced severe orthopaedic injuries, with 80% of these injuries involving lower limb fractures and 20% involving upper limb fractures. Despite the fact that two-thirds of fallers were male overall, half of those with severe orthopaedic injuries were female.

Patient-related factors contributing to falls included age, with four out of five patients being over 70 years old, with 60% having more than one comorbidity. Additionally, 30% of patients were dependent on a walking aid.

Only 40% of these patients were identified as having a high risk of falls according to the Morse Falls Scale, a percentage similar to those with no or minimal injury.

Furthermore, 20% had a history of falls at home. The majority of falls (four out of five) occurred by the bedside while getting out of bed or tripping, although 1 in 5 falls were unwitnessed.

Factors related to falls that resulted in severe injuries included the time of the fall, with half occurring during the night shift, with 80% occurring in acute medical wards.

CONCLUSION:

Inpatient falls continue to pose a significant risk to patient safety, particularly with orthopaedic injuries being a primary concern for patient harm. These incidents incur substantial service and financial burdens on healthcare institutions. There is a pressing need for ongoing efforts to pinpoint optimal strategies for preventing inpatient falls.

REFERENCES:

AlSumadi M, AlAdwan M, AlSumadi A, Sangani C, Toh E. Inpatient Falls and Orthopaedic Injuries in Elderly Patients: A Retrospective Cohort Analysis From a Falls Register. Cureus. 2023 Oct 13;15(10):e46976. doi: 10.7759/cureus.46976. PMID: 38021560; PMCID: PMC10640872

A STUDY ON THE INCIDENCE OF RAISED TROPONIN IN HIP FRACTURE PATIENTS AND THEIR OUTCOMES AFTER SURGERY

[1]Chong, SN; [1]Loh, PS; [2]Khor HM
1. *Department of Anesthesiology and Intensive Care, University of Malaya, Kuala Lumpur, Malaysia*
2. *Department of Geriatrics, University of Malaya, Kuala Lumpur, Malaysia*

INTRODUCTION:
Hip fracture is the most common fragility fracture among the elderly. The European Society of Cardiology guideline 2022, recommend the measurement of high sensitivity cardiac troponin in patients with known cardiovascular diseases and those with cardiovascular risk factors as screening for perioperative myocardial injury. Our primary outcome is to identify the incidence of raised troponin in hip fracture patients ≥ 45 years old. The secondary outcomes are to compare the all-cause mortality and adverse events between patients with raised and normal troponin within 30 days of surgery.

MATERIALS & METHODS:
This is a cross sectional prospective study from June to December 2023. Consecutive patients aged ≥ 45 years old with hip fracture of low energy mechanism requiring surgery were included in this study. Information on baseline characteristics, comorbidities, high sensitivity troponin I (hs-cTni) levels, time to surgery and surgery type were collected. Adverse outcomes such as mortality rate and major adverse cardiovascular events (MACE) were collected within 30 days postoperatively.

RESULTS:
A total of 102 patients were recruited during the study duration. Mean age of patients were 79.05 (SD 7.26) years old. 18.6% had raised hs-cTni level with mean of 44.58(SD 19.04)ng/L. There was no difference in baseline characteristics and cardiovascular risk factors between patients with raised and normal hs-cTni. However, patients with neck of femur fracture were associated with significantly raised hs-cTni compared to patient with intertrochanteric and subtrochanteric fractures. Time to surgery from diagnosis was 84 hours in patients with normal hs-cTni and 104 hours in those with raised hs-cTni (p=0.95).

For the secondary outcomes, there were no statistically significant difference between these two groups of patients in terms of MACE and other morbidities.

DISCUSSIONS:
Previous studies reported higher mortality and cardiac complications observed among hip fracture patients with raised troponin perioperatively. However, from our study, there was no significant difference in terms of MACE, and other morbidities. The commonest morbidities postoperatively were delirium and anemia.

CONCLUSION:
The significance of preoperative Hs-cTni still remains controversial as raised troponin can be multifactorial. A thorough preoperative assessment and perioperative changes in troponin level might be more helpful in terms of risk stratifying patients.

Patients with raised troponin	Frequency	Percentage
No	83	81.4
Yes	19	18.6
Total	102	100.0

Figure 1: Incidence of raised troponin

	TROPONINS -RAISED			Sig
	No (n,%)	Yes (n,%)	Total (n,%)	
All-Cause Mortality (within 30 days after surgery)	4 (4.8%)	0 (0%)	4 (3.9%)	0.936
Post-operative heart failure	2 (2.4%)	1 (5.3%)	3 (2.9%)	0.507
Post-operative myocardial infarction	0 (0%)	0 (0%)	0 (0%)	-
Post-operative new onset atrial fibrillation	0 (0%)	1 (5.3%)	1 (1%)	0.250
Post-operative cardiac rehospitalization	0 (0%)	0 (0%)	0 (0%)	-
MACE Composite (Death, Post op MI, HF, AF, Cardiac rehospitalization	6 (7.2%)	2 (10.5%)	8 (7.8%)	0.63

Figure 2: Incidence of all-cause mortality, MACE

DOES TIMING OF SURGERY MATTER IN NECK OF FEMUR FRACTURES?

[1]Sarbhjit Singh Lakha Singh; [1]Sanjay Raj Subramaniam; [1]Sangitaa P Palaniappan; [1]Khanchana Devi Theveraja; [1]Jade Pei Yuik Ho, [1]Kunalan Ganthel
1. Department of Orthopaedic Surgery, Hospital Kuala Lumpur, Malaysia

INTRODUCTION:
Patients who underwent surgery within 48 hours showed a 20% lower risk of mortality within the next year[1]. An increased time to surgery prolongs pain and is associated with increased morbidity and mortality.

MATERIALS & METHODS:
This was a retrospective study of geriatric patients who sustained femoral neck fractures and were admitted between 2022-2023. Data were extracted from patient medical records and phone interviews.

RESULTS:
Of the study population, 20.8% underwent arthroplasty within 48 hours. Age, sex, ethnicity, body mass index, education level, smoking status, pre-fracture mobility, and the number of comorbidities were similar between the groups. More patients with cardiac disease had delayed surgery than those who did not, and this difference was statistically significant. There were no statistically significant differences in the overall complication rate, blood loss, discharge mobility, discharge destination, and patient-reported outcome measures at 6 months between those who underwent surgery within 48 hours and those who did not. There was also no significant difference in the type of implant used between the groups.

DISCUSSIONS:
The National Institute for Health and Care Excellence (NICE) recommends performing surgery on the day of, or the day after admission. The study revealed that while a fifth of patients received prompt surgery (within 48 hours), those with cardiac disease experienced a significant delay. Interestingly, this delay didn't affect short-term recovery, or outcomes compared to immediate surgery. A more prolonged follow-up period may yield more significant findings.

CONCLUSION:
Presents of cardiac disease significantly increased the likelihood of delayed surgery. However, neither the timing of surgery nor the type of implant used impacted factors like complication rates, post-surgical mobility, or patient-reported outcomes at 6 months.

REFERENCES:
Klestil T, Röder C, Stotter C, Winkler B, Nehrer S, Lutz M, Gartlehner G, Nussbaumer-Streit B. Impact of timing of surgery in elderly hip fracture patients: a systematic review and meta- analysis. Scientific reports. 2018 Sep 17;8(1):13933.

IS THE TIP-APEX DISTANCE A RELIABLE PREDICTOR OF IMPLANT FAILURE IN SURGICAL FIXATION OF FEMORAL NECK FRACTURES WITH THE SYNTHES FEMORAL NECK SYSTEM (FNS) DEVICE?

[1]Cheong, Teddy; [2]Heng, Christian; [1]Wong, Merng Koon
1. *Orthopaedic Surgery, Sengkang General Hospital, 110 Sengkang E Wy, Singapore, Singapore*
2. *Orthopaedic Surgery, Singapore General Hospital, Outram Road, Singapore, Singapore*

INTRODUCTION:
The Femoral Neck System (FNS) is a relatively new fixation device used to treat femoral neck fractures (FNFs). The Tip-Apex Distance (TAD) has been proven to effect outcomes of sliding hip screws (SHS). However, it is unclear if the TAD has the same effect on FNS outcomes. The purpose of this study was to assess if the TAD is a predictor of FNS fixation implant failure in FNFs. Furthermore, the outcomes of FNS at our institution as well as risk factors for failure were assessed.

MATERIALS & METHODS:
This retrospective, single-centre study included 62 patients who underwent FNS for FNFs between 2017-2022. Clinical, radiographic, and pre/peri/post-operative data were described. Failure was defined as the presence of complications like implant failure, avascular necrosis (AVN), neck shortening.

RESULTS:
Mean age of the cohort was 69.6 years. Average follow up duration was 13.3 months. Failure rate was 11.3%. Mean TAD was 16.8mm and 18.2mm in the failure and non-failure groups respectively. Osteoporosis prevalence was 71.4% in failure group and 43.6% in non-failure group. Mean operation duration: 54.7 minutes. Mean length of stay in acute hospital: 9.2 days.

DISCUSSIONS:
A TAD of >25mm has been shown to carry a higher risk of implant failure in the SHS. However, despite keeping the TAD <25mm, 7 patients still had failed outcomes. Interestingly, the mean TAD was lower in this failure group as compared to the non-failure group. Both groups had <25mm mean TADs. A notable point is the osteoporosis prevalence amongst the failure group being higher than the non-failure group which could suggest that presence of osteoporosis affects the FNS outcomes. Overall, the failure rate was 11.3% which is comparable with previous FNS studies and other implants.

CONCLUSION:
The TAD is not a predictor of implant failure and does not affect outcomes of FNS for treatment of FNFs. Additionally, the FNS is shown to be a reliable device with a low failure rate, comparable with previous studies and other implants.

	Failure (n=7)	Non-Failure (n=55)
Mean Age [years] (mean, SD)	67.4 (18.9)	69.90 (12.6)
Body Mass Index (mean, SD)	22.8 (5.8)	21.6 (3.7)
Charlson Comorbidity Index Score (mean, SD)	2.9 (2.1)	3.3 (1.8)
Pre-op Gardens Score (mean, SD)	1.0 (0)	1.4 (0.8)
Tip-Apex Distance [mm] (mean, SD)	16.8 (4.9)	18.2 (5.3)
Osteoporosis	5/7 (71.43%)	24/55 (43.60%)

Table 1: Failure vs Non-Failure Comparison

FACTORS AFFECTING CHOICE OF ARTHROPLASTY IN THE TREATMENT OF GERIATRIC NECK OF FEMUR FRACTURES

[1]Sanjay Raj Subramaniam, [1]Sangitaa P Palaniappan, [1]Khanchana Devi Theveraja, [1]Sarbhjit Singh Lakha Singh, [1]Jade Pei Yuik Ho, [1]Kunalan Ganthel
1. *Department of Orthopaedic Surgery, Hospital Kuala Lumpur*

INTRODUCTION:
The decision for total hip arthroplasty (THA) or hemiarthroplasty (HA) depends on age, cognitive function, activity level and medical comorbidities. THA provides better long-term function, but hemiarthroplasty has less severe cardiorespiratory adverse events with lower dislocation risk[1]. Our study describes factors affecting the choice of arthroplasty in geriatric femoral neck fractures.

MATERIALS & METHODS:
We retrospectively studied geriatric patients who sustained femoral neck fractures between 2022-2023. Data were extracted from patient's medical records and phone interviews.

RESULTS:
In this cohort 43% underwent total hip arthroplasty (THA) while 57% of patients underwent hemiarthroplasty in which 18% had a Thompson hemiarthroplasty while 82% had a bipolar hemiarthroplasty. Patients who underwent THA were significantly younger with higher BMI. There was significantly higher blood loss in the THA cohort, but there were no differences in transfusion or complication rates. WOMAC (Western Ontario and McMasters Universities Arthritis Index) scores were better in those who had a THA.

DISCUSSIONS:
The National Institute for Health and Care Excellence (NICE) recommends THA over HA for patients ambulating independently with just a walking stick, without medical illness that makes the operation unsuitable and are expected to carry out activities of daily living independently more than 2 years[2]. This study suggests a potential link between patient characteristics and the choice of arthroplasty. Younger individuals with good bone quality and functional outcome are suitable for THA due to potentially greater patient demand and long-term wear on the implant. This is supported by higher WOMAC scores in the THA group.

CONCLUSION:
While THA offers improved post-operative function and pain relief, it comes with the drawback of increased blood loss. This highlights the importance of individual patient assessment and balancing potential benefits with surgical risks.

REFERENCES:
Bhandari M, Einhorn TA, Guyatt G, Schemitsch EH, Zura RD, Total Hip Arthroplasty or Hemiarthroplasty for Hip Fracture. N Engl J Med. 2019 Dec 5;381(23):2199-2208.

BRIDGING GAPS IN CARE: A COMPREHENSIVE REVIEW OF HIP FRACTURE CARE IN A TERTIARY HOSPITAL IN SARAWAK

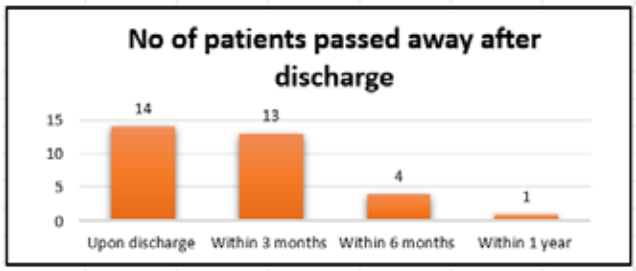
[1]Ting, LY; [1]Ling, JN; [1]Chuah, ABS
1. *Geriatric Department, Sarawak General Hospital*

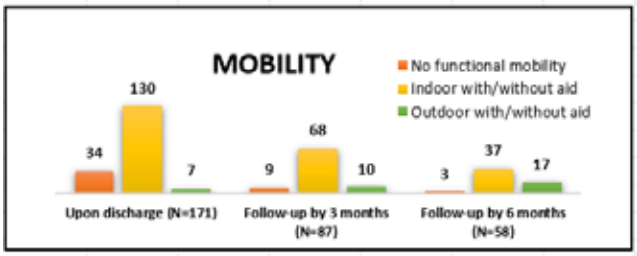
INTRODUCTION:
Elderly hip fractures, often from osteoporosis, are a major health concern, leading to poor outcomes, disabilities and high mortality. A multidisciplinary team (MDT) bridging the expertise of surgeons and geriatricians alongside various allied healthcare professionals aims to address patients' complex and multifaceted needs. We aimed to describe the hip fracture care post-introduction of orthogeriatric-led multidisciplinary services initiated in October 2022 and its outcomes in terms of status, mobility and initiation of bone therapy.

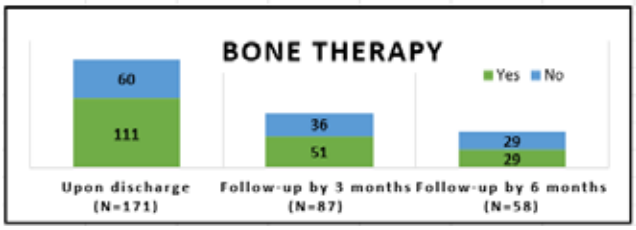
MATERIALS & METHOD
A prospective study examined hip fracture care among elderly individuals (aged ≥ 60) admitted to the Orthopedic Department, Sarawak General Hospital from February to December 2023.

RESULTS:
Out of 185 patients, 70% were female, Chinese (42.6%) reporting a mean age of 78.1 years old. Intertrochanteric (50.3%) and neck of femur (43.2%) fractures commands majority of hip fractures whom were managed surgically (75.7% vs 24.3%), predominantly via proximal femoral nail (PFN) (56.4%).

Most patients underwent a comprehensive assessment inclusive of inpatient fall assessment (97.3%), dietician review (83.8%) and physiotherapist assessment within 24-48 hours of admission (42.2%). Mortality of hip fracture upon discharge was 8% despite the majority (61.6%) reporting an uncomplicated stay with a mean length of 14.8 days.







DISCUSSION:
Our result highlighted high surgical rates for hip fracture but delayed time-to-surgery given limited operating theatre (OT) slot despite uncomplicated stay with few complications. A periodic audit like ours helps to identify the issues and provide constructive feedback to improve the current hip fracture care pathways, not forgetting the need for a coordinator for data management to ensure proper follow-up care.

CONCLUSION:
Development and support of orthogeriatric-led MDTs represent a paradigm shift towards more effective and patient-centric hip fracture care among elderly populations, aiming towards improving clinical outcomes and enhancing overall quality of life and functional independence.

REFERENCES:
Pei et al., Mobility and Hip Function Among Geriatric Patients with Displaced Neck of Femur Fractures Treated with Arthroplasty. Geriatric Orthopedic Surgery & Rehabilitation Vol 14:1-9.

INSIGHTS INTO HOSPITALISED FRACTURE INCIDENCE AMONG OCTOGENARIANS: LONGITUDINAL SHIFTS IN RISK FROM LILACS NZ COHORT STUDY

[1]Bacon, Catherine J; [2]Moyes SA; [2]Teh R; [3]Hikaka J; [2,3]Kerse N
1. *School of Nursing, University of Auckland, Grafton Road, Auckland New Zealand*
2. *General Practice and Primary Healthcare, University of Auckland*
3. *Centre for Co-Created Ageing Research, University of Auckland*

INTRODUCTION:
Fractures are most prevalent in individuals over 80 years, causing substantial disability and financial burden, often requiring hospitalisation. This study examines longitudinal changes in hospitalised fracture epidemiology in advanced age.

MATERIALS & METHODS:
Hospital discharge records from participants in a prospective cohort study of 421 Māori aged 80–90 years and 517 non-Māori aged 85 years (LiLACS NZ)[1] were utilised to determine the incidence of hospitalised fractures over a 10-year period, spanning 5 years before and after-enrolment.

RESULTS:
From the initial cohort, 421 Māori, aged 82.6±2.8 years (mean±SD); and 516 non-Māori, 84.6±0.5 years, follow-up hospital fracture data were available for 378 Māori and 498 non-Māori. In the 5 years prior to enrolment, 22 (5.8%) Māori and 43 (8.6%) non-Māori were hospitalised at least once for fracture, increasing to 29 (7.7%) and 62 (12.4%), respectively, in the subsequent 5 years. fracture incidence increased 17% and 20% in Māori and non-Māori men and 62% and 61% in Māori and non-Māori women before to after enrolment; pelvis/femoral fractures accounting for almost half (47%) of these. Fracture-related hospital nights/1000 person-years increased from 320 before to 543 after enrolment, more than doubling (107% increase) in non-Māori, but increasing only 1.7% in Māori. The proportion of hospital nights due to fractures rose from 13.9% to 16.5% from before to after enrolment in non-Māori, though reduced in Māori (10.7% to 6.4%). For all Māori and all men, current compared to past smoking was independently associated with increased risk of fracture hospitalisation, and for all men high deprivation and fewer falls in the previous 12 months were additionally associated with increased subsequent fracture risk

	Men	Women	Total
n	395	481	876
5 years Prior to Enrolment			
No fractures (n)	368	443	811
1 fracture (n)	25	31	56
>1 fracture (n)	2	7	9
Hospital nights	556	844	1400
Nights/1000 p-y	282	351	320
% of all hosp night	10.3	14.6	12.5
5 years Following Enrolment			
No fractures (n)	360	425	785
1 fracture (n)	33	46	79
>1 fracture (n)	2	10	12
Hospital nights	655	1237	1892
Nights/1000 p-y	439	622	543
% of all hosp night	9.4	14.7	12.3

Table 1: Number of hospitalized fractures in the 5 years before and after study enrolment.

DISCUSSION & CONCLUSION:
Among octogenarians, the risk of hospitalised fractures markedly escalates with 5 years of ageing, particularly in women, almost doubling the total duration of fracture-related hospitalisation. Projections of fracture burden in advanced age need to account for the swiftly changing risk with minimal age increments.

REFERENCES:
Kerse et al. 2015. Cohort Profile: Te Puawaitanga o Nga Tapuwae Kia Ora Tonu, Life and Living in Advanced Age: A Cohort Study in New Zealand (LiLACS NZ). Int J Epidemiol 44(6):1823-32.

A SALVAGE PROXIMAL FEMUR REPLACEMENT OF FAILED INTRAMEDULLARY NAILS IN ELDERLY PATIENT: A CASE REPORT

[1]M Hafizuddin AS; [2] M Azhar A
1. Department of Orthopedic, Hospital Sultanah Bahiyyah

INTRODUCTION:
The elderly with osteoporosis who have complex and unstable proximal femur fracture patterns have an increased risk of failure following fixation. Given that of the intricacy of the new fracture and the patients' general state of fragility, treatment poses challenges for the surgeons. PFR can be an effective first-line therapy for elderly osteoporotic patients with catastrophic intramedullary nail failure and high-grade bone loss in the proximal femur region. We report a case of elder patient with catastrophic internal fixation failures treated with proximal femur replacement(PFR).

MATERIALS & METHODS:
An 88-year-old woman with an underlying history of hypertension and a left proximal femur fracture treated with an interlocking nail came to the orthopedic clinic complaining of pain in her left hip after another slip and fall. . The X-ray shows non-union over the proximal femur fracture, failure of the interlocking nail, and a new neck of femur fracture. (Figure 1)

RESULTS:
After considering several surgical options, including proximal femur nail and total hip arthroplasty with cable plate, the patient's course of therapy was agreed to be PFR. Intraoperatively was uneventful. Following surgery, the patient recovered and was able to stand and walk using a walking frame. The postoperative radiograph was great. (Figure 2)

DISCUSSIONS:
This case demonstrates a dilemma in surgical strategy with regard to the patient factor and condition. A Conventional arthroplasties are frequently excluded in cases of catastrophic

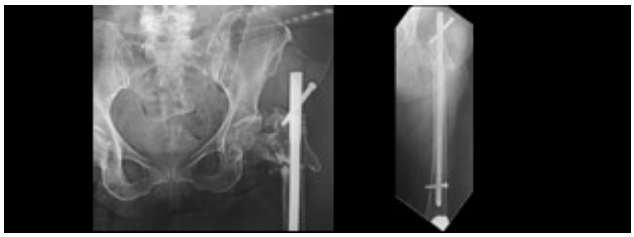


Figure 1

Figure 2

event in favor of more complicated reconstructive techniques like resection arthroplasties and the use of allograft prostheses composite. PFR is an intriguing treatment option since it is technically less demanding and allow early mobilization.

CONCLUSION:
In summary, using a PFR seems to be a desirable option for elderly patients who have failed internal fixation for proximal femur fractures.

REFERENCES:
Innocenti, Matteo & Guido, (2021). Proximal femoral replacement: A salvage treatment of cephalomedullary nails' mechanical failures in the elderly population. Injury. 52. 10.1016/j.injury.2021.04.038.

COMPARISON BETWEEN SENIOR AND JUNIOR SURGEONS PERFORMING ARTHROPLASTY IN GERIATRIC NECK OF FEMUR FRACTURES

[1]Sangitaa P Palaniappan, [1]Khanchana Devi Theveraja; [1]Sanjay Raj Subramaniam; [1]Sarbhjit Singh Lakha Singh; [1]Jade Pei Yuik Ho, [1]Kunalan Ganthel
1. *Department of Orthopaedic Surgery, Hospital Kuala Lumpur*

INTRODUCTION:
The aim of this study was to compare outcomes between senior and junior surgeons who performed arthroplasty in geriatric neck of femur fractures.

MATERIALS & METHODS:
This is a retrospective study of geriatric patients who were operated on for femoral neck fractures in 2022-2023 in our center. Senior surgeons (SS) were those who have completed fellowship training while junior surgeons (JS) were those in fellowship training. Treatment details, complications, and functional outcome scores (Western Ontario and McMasters Universities Arthritis Index) post-surgery was collected and compared between groups.

RESULTS:
SS performed 38% of the surgeries. SS performed significantly more total hip arthroplasty (THA) compared to JS. Both sample size had equally balanced patients in terms of patient demographics. Patients operated on by SS were younger and had a higher body mass index. JS took a longer time to complete surgery, but this difference was not significant. However, more blood loss was recorded in patients operated on by SS. There were no differences observed in the complication rate, transfusion rate and functional outcome between groups.

DISCUSSIONS:
Previous studies have suggested that surgeries performed by arthroplasty surgeons who have completed their fellowship have shorter surgical times and better functional scores[1]. However, in this study, although JS had slightly longer surgery times and SS patients had higher BMI, there were no significant differences in complication rates, blood transfusions, or patient function between groups.

CONCLUSION:
Overall, the study suggests that while SS perform a larger volume of THA procedures, patient outcomes are comparable irrespective of surgeon seniority. This suggests comparable outcomes despite surgeon experience, highlighting the importance of proper training for junior surgeons.

REFERENCES:
Mahure SA, Feng JE, Schwarzkopf RM, Long WJ. The Impact of Arthroplasty Fellowship Training on Total Joint Arthroplasty: Comparison of Peri-Operative Metrics between Fellowship-Trained Surgeons and Non-Fellowship-Trained Surgeons. J Arthroplasty. 2020 Oct;35(10):2820-2824. doi: 10.1016/j.arth.2020.05.027. Epub 2020 May 21. PMID: 32540307.

PREOPERATIVE NUTRITIONAL STATUS AMONG GERIATRIC NECK OF FEMUR FRACTURES TREATED WITH ARTHROPLASTY

[1]Khanchana Devi Theveraja; [1]Sarbhjit Singh Lakha Singh; [1]Sangitaa P Palaniappan, [1]Sanjay Raj Subramaniam, [1]Jade Pei Yuik Ho, [1]Kunalan Ganthel
1. Department of Orthopaedic Surgery, Hospital Kuala Lumpur

INTRODUCTION:
Nutrition plays a crucial role in the overall success of a joint replacement. Many older patients have complex medical problems and have a compromised baseline nutritional status that may affect the outcome of joint replacement for neck of femur fractures in these patients. Albumin, hemoglobin, total lymphocyte count, BMI and HbA1C are some of the important indicators of nutritional status and postoperative outcomes.

MATERIALS & METHODS:
This is a retrospective study of geriatric patients who sustained neck of femur fractures admitted to our hospital in 2022-2023 and who were treated operatively. Data was extracted from patient medical records and phone interviews. Information regarding demography, comorbidities, premorbid ambulatory status, timing of surgery, treatment details, complications, nutritional status, and functional outcome scores (Western Ontario and McMasters Universities Arthritis Index) post-surgery were collected.

RESULTS:
In this study cohort, 87.3% of patients received an inpatient nutritional assessment. The mean albumin, hemoglobin, urea, creatinine, c-reactive protein (CRP) and HbA1C values were 31.6 g/L, 11.8 g/dL, 7.3 mmol/L, 100.5 umol/L, 39.1 mg/L and 6.5% respectively. Men had significantly higher urea, creatinine, CRP and HbA1C compared to women. Patients with a higher ASA category had significantly lower albumin and hemoglobin levels but higher creatinine levels. The overall rate of complication was statistically higher in patients who had lower albumin and higher creatinine levels. These parameters did not affect time to surgery.

DISCUSSIONS:
Some previous studies suggest that routine testing of all healthy patients is not warranted before TJA[1]. This study assessed pre-operative nutrition in patients which underwent joint replacement surgery. While most received an evaluation, blood tests revealed a link between albumin and creatinine level and the risk of complications after surgery. Despite multiple recommendations, nutritional laboratory studies are infrequently ordered prior to TKA[2].

CONCLUSION:
Most patients received a nutritional assessment, revealing a link between pre-operative blood investigation values and post-surgical complications. Patients with lower albumin and higher creatinine levels experienced a statistically higher complication rate. This suggests that optimizing pre-operative nutrition, particularly for high-risk groups, might be essential for better surgical outcomes.

REFERENCES:
1. Rao SS, Chaudhry YP, Solano MA, Sterling RS, Oni JK, Khanuja HS. Routine Preoperative Nutritional Screening in All Primary Total Joint Arthroplasty Patients Has Little Utility. J Arthroplasty. 2020 Dec;35(12):3505-3511. doi: 10.1016/j.arth.2020.06.073. Epub 2020 Jun 30. PMID: 32723504.
2. Rakutt, Maxwell J. MD[1]; Eason, Travis B. MD[2]; Boyle, K. Keely MD[3]; Buller, Leonard T. MD[4]; Krueger, Chad A. MD[5]; Jacobs, Cale A. PhD[6]; Duncan, Stephen T. MD[2]; Landy, David C. MD, PhD[2,a]. Nutritional Laboratory Studies Prior to Total Knee Arthroplasty: Practice Versus Publication. JBJS ():10.2106/JBJS.23.00572, September 28, 2023. | DOI: 10.2106/JBJS.23.00572

ANALGESIC SELF-MEDICATION BY HIP FRACTURE PATIENTS: AN OVERLOOKED RISK FACTOR FOR MORBIDITY?

[1]Muhammad, Zehra Abdul; [1,2]Ahmad, Tashfeen; [1]Mohib, Yasir; [1]Zubairi, Akbar Jaleel; [1]Sawayba, Ansa Syeda;[1]Shaikh, Abdul Samad

1. *Department of Surgery, [2]Department of Biological & Biomedical Sciences, Aga Khan University, Karachi, Pakistan*

INTRODUCTION:

Around 59% of patients do not fully comply with analgesic prescriptions, leading to undesired effects(1). Combinations of analgesics pose compounded risks (2). This study aims to compare incidence of adverse events and pain control in hip and ankle-foot fracture patients who comply with prescribed analgesics versus those who add self-selected analgesics to their prescription.

MATERIALS & METHODS:

After ethical approval of the prospective observational cohort study, adult proximal femoral, ankle, and hindfoot fracture patients operated at a tertiary care hospital were enrolled between June 2022 to January 2024. Analgesics prescribed at hospital discharge, 1- and 2-week follow-ups were recorded with adverse events and pain scores at 1- and 2-week follow-ups. Patients were divided into prescription-compliant and self-medication groups. Sub-group analysis was done for proximal femur vs ankle-foot fractures, and age groups. Adverse events and pain were compared within and between groups/ sub-groups using Fisher's exact, Mann Whitney U/Kruskal Wallis tests.

RESULTS:

Out of 288 enrolled patients 41 patients (14%) were self-medicating and their median age was 72 years (IQR 17). Common self-selected analgesics were acetaminophen (24%), tramadol with/without acetaminophen (27%), NSAIDS (37%), acetaminophen-orphenadrine (7%), and gabapentin/pregabalin (5%). The prescription-compliant group comprised 244 patients (85%) and tended to be younger though not significantly with median age of 66 years (IQR=24). The self-medication group had significantly more adverse events (risk ratio 1.43, *p*=0.026) but not serious adverse events (*p*=0.072). Pain scores in self-medication group were significantly higher in hip fracture patients at 1- and 2 weeks respectively (*p*=0.054, *p*=0.002), but not ankle-foot fractures.

	Time	Self-med. ment	Compliant	*p*-value	
Total (N=288)	1 week	5±3.3	4±2.1	0.049*	
	2 week	3±3.4	2±2	0.0027*	
Proximal femoral fracture (N=212)	1 week	5±3	4±2	0.054	0.99 (1 wk)
	2 week	3±3	2±2	0.002*	
Ankle-foot fractures (N=76)	1 week	4±4	3±3	0.58	0.89 (2 wks)
	2 week	3±3.5	2±2	0.13	

Table 1: Comparison of pain scores by Visual Analogue Scale (median ± interquartile range) within and between groups/sub-groups.

Events	Self-treatment	Compliant	*p*-value
None	12	86	Ref
Adverse	25	77	0.026*
Serious adverse	4	81	0.071
All adverse	29	158	0.456

Table 2: Comparison of adverse events (n).

DISCUSSION:

The data indicates that post-fracture surgery the older patients tend to add self-medications with analgesics including opiates. More adverse events are seen in those who self-medicate, and pain control is worse, in hip fracture patients.

CONCLUSION:

Counselling on risks of self-medication should be routine, especially for the elderly with hip fractures. We recommend pharmacovigilance of self-medication to prevent morbidity.

REFERENCES:

1. NCDAS 2024. https://drugabusestatistics.org/ prescription-drug-abuse-statistics/
2. NIDA 2021. https://nida.nih.gov/publications/research-reports/misuse-prescription-drugs/it-safe-to-use-prescription-drugs-in-combination-other-medications

HAS FRACTURE PATTERN OF FEMORAL TROCHANTERIC FRACTURE CHANGED DURING THESE 10 YEARS? -3D-CT EVALUATION

[1]Shoda E, [1]Sasaki T, [1]Akino H, [2]Kanayama C

1. *Department of Orthopaedic Surgery, Nishinomiya Watanabe Hospital, 10-22 Murokawa-cho, Nishinomiya, Hyogo, 662-0863 Japan*
2. *College of Social Science, Ritsumeikan University, 56-1 Toujiin Kitamachi Kita-ku, Kyoto, Japan*

INTRODUCTION:
The incidence of femoral trochanteric fractures is rapidly increasing with the growth of elderly population. We imagine fracture pattern has changed recently with the lengthening of average length of life. In this study, we investigated the change of fracture pattern of femoral trochanteric fractures during these 10 years.

MATERIALS & METHODS:
We evaluated fracture pattern with our 3D-CT classification in two different period (first period is 2011-2014 and second period is 2021- 2023). We modified our original 3D-CT classification recently and it is as bellow; 2part, 3part with 5 subgroups (small fragment of greater trochanter: 3part Gs, big fragment: Gb, large fragment including lesser fragment: G-L, whole fragment of greater trochanter: Gw, fracture of lesser trochanter: L) and 4part. We recently add two subgroups to G-L type, one is separate type (G-L separate) and another one is long beak under lesser trochanteric type (G-L long beak)(Fig).

RESULTS:
There are 89 cases in first period (average age: 84.9, 10male, 79 female) and 90 cases in second period (average age:86.0, 15male, 75 female). In first period, number of each pattern are 2part: 17 case (19.1%), 3part Gs:10 (11.2%), Gb:14 (15.7%), G-L: 27 (30.3%), G-L separate: 10 (11.2%), G-L long beak: 1 (1.1%), Gw: 4 (4.5%), L: 4 (4.5%), 4part: 2 (2.2%). In second period, number of each pattern are 2 part: 21 case (23.3%), 3part Gs: 10 (11.1%), Gb:18 (20%), G-L: 11 (12.2%), G-L separate: 17 (18.9%), G-L long beak: 6 (6.7%), Gw: 4 (4.4%), L: 1 (1.1%), 4part: 2 (2.2%). G-L separate type (first period: 10 cases, second period:17 cases) and G-L long beak type (first period: 1 case, second period: 6 cases) of 3part G-L significantly increased in second period ($p<0.01$) (Table).

CONCLUSION:
In distribution of fracture pattern, more unstable type (separate type and long beak under lesser trochanteric type) among unstable 3part G-L type has increased.

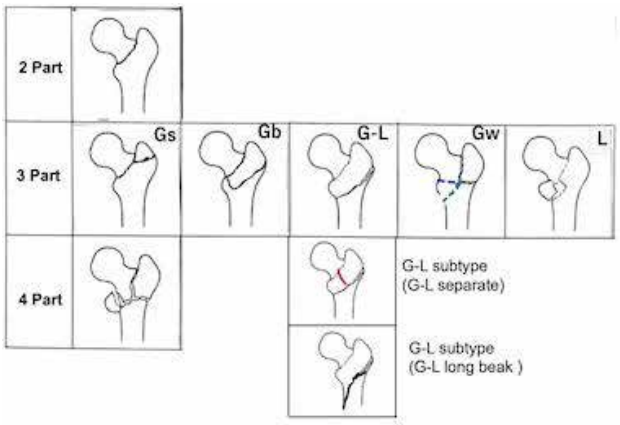


Figure: 3DCT classification

Table. fracture type in different period

	2011-2014 (89cases)	2021-2023 (90 cases)
2 part	17	21
3 part G-S	10	10
G-B	14	18
G-L	27	11
G-L separate	10*1	17*1
G-L long spike	1*2	6*2
3 part GW	4	4
3 part L	4	1
4 part	2	2

*1, *2 P<0.01

Table: Fracture type in different period

FUNCTIONAL OUTCOMES RELATIONSHIP WITH EARLY FIXATION OF INTERTROCHANTERIC FRACTURE USING DYNAMIC HIP SCREW

[1]Basyar MN, [2]Suhana SB
Orthopaedic Department, Hospital Melaka, Jalan Mufti Haji Khalil, 75400, Melaka

Background
Hip fragility fracture is one of the most important health problem suffered by elderly and leaves patients with functional limitations. The aim of this study is to analyze the relationship between functional outcomes and early fracture fixation.

Materials and methods
This retrospective study included patients 50 years old or older with low energy intertrochanteric fracture who underwent surgery using dynamic hip screw in Hospital Melaka in 2022 and 2023. Patients were allocated into two different groups, one with fixation done in less than 72 hours and the other with fixation done after 72 hours. The functional outcomes were measured using questionnaire which include functional mobility classification (FAC), post operative pain after 1 year, and housing conditions.

Results
68 patients were included in the study (mean age 75.2) with 31 patients in the early fixation group (<72 hours) and 37 patients in the delayed fixation group (>72 hours). However the complete result is still ongoing.

Discussion
Many factors are involve in the delay of operation. Early fixation leads to shorter hospital stay, faster recovery and lesser complications.

Conclusion
Early fracture fixation provides better functional outcome compared to delayed fixation (>72 hours).

THE ASSOCIATION OF PREOPERATIVE DELIRIUM AND HIP FRACTURE OUTCOMES

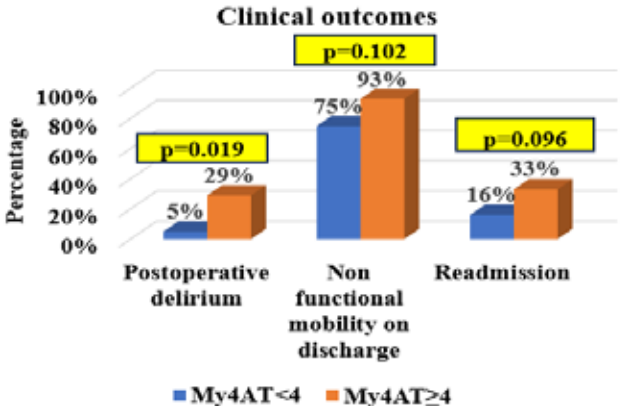
[1]Loh AY; [1]Yap HK; [1]Tiong WJ; [1]Lim SC; [1]Looi JS; [1]Ng CC; [1]Lim HT; [2]Yap SY
1. *Department of Internal Medicine, Hospital Sultan Ismail Johor Bahru, Johor, Malaysia*
2. *Department of Pharmacy, Hospital Sultan Ismail Johor Bahru, Johor, Malaysia*

INTRODUCTION
Delirium in hip fracture patients is a frequent complication, and associated with negative consequences. Our study aims to analyze characteristics of hip fracture patients with preoperative delirium and determine its associations with clinical outcomes.

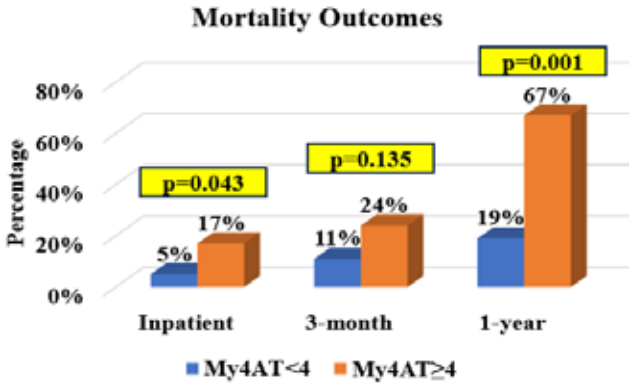
MATERIALS & METHODS
Retrospective analysis of data for all hip fracture patients ≥60 years admitted to orthopedic ward and reviewed by geriatric team between July 2022 and December 2023. Delirium assessment using the My4AT is part of routine assessment done by geriatric team in orthopaedic ward. We extracted data from electronic medical records. Cases transferred to other healthcare facility (n=6) were excluded. Associations with morbidity and mortality outcomes were analyzed.

RESULTS
Of 216 patients (mean age 77 years; 76% female), 167 (77%) had completed My4AT assessment, of whom 18 (11%) had preoperative delirium. Patients with delirium were older (79±7 VS 76±8), contain higher proportion of female (83% VS 78%), diabetic (56% VS 45%) and frail (CFS ≥4) (77% VS 65%) patients than patients without delirium (all p>0.05). American Society of Anaesthesiologist (ASA) score≥3 is significantly associated with preoperative delirium (64% vs 33%, p=0.038). Only one-third of delirious patients were operated (p=0.013) and median waiting time for operation was longer than non-delirious group (14 days VS 12 days, p=0.206). Preoperative delirium was associated with poorer morbidity (Graph 1) and mortality outcomes (Graph 2).

DISCUSSIONS:
Only three-quarter of patients did have My4AT score recorded. Routine delirium assessment using validated tool such as My4AT should be advocated as part of standard care for all acute hip fracture patients. [1] Patients who were delirious on admission should have prompt surgery to prevent potential adverse outcomes.



Graph 1: Morbidity outcomes



Graph 2: Morbidity outcomes

CONCLUSION:
Early delirium assessment could guide prognostication and facilitate proactive advanced care planning, including addressing modifiable clinical risk factors.

REFERENCES:
M Pin Tan et al., The effectiveness of My4AT for rapid delirium screening in hospitalized older adults, Australasian Journal on Ageing, Vol 37 Supplement S2, June 2018; Pg 46.

SINGLE-CENTER COMPARATIVE STUDY PRE AND POST ORTHOGERIATRIC COMANAGEMENT

[1]Shota, Nakagawa; [1,2] T, Sawaguchi, [1, 2]T Matsushita

1. *Trauma and Reconstruction Center, Shinyurigaoka General Hospital, 255 Furusawatsuko, Asaoku, Kawasaki, Japan*
2. *Fukushima Medical University, 1 Hikarigaoka, Fukushima, Fukushima, Japan*

INTRODUCTION:
Orthogeriatric co-management (OC) has emerged as a beneficial approach in managing geriatric hip fractures. This study aimed to evaluate the impact of OC by conducting a comparative analysis before and after its implementation at our hospital in April 2022.

METHODS:
A retrospective analysis was performed on geriatric hip fracture surgeries from October 2021 to October 2022. Patient demographics, surgical timing, hospital length of stay, mortality rates, and adherence to osteoporosis medications were compared between two periods: pre-intervention (Group C: April 2021 to March 2022) and post-intervention (Group I: April 2022 to October 2022).

RESULTS:
Group C comprised 73 patients, while Group I included 78, with mean ages of 85.5 and 83.8 years, respectively. In Group I, there was a significant reduction in surgical delay (21.7 hours vs. 16.3 hours, p=0.002) and shorter hospital stays (17.1 days vs. 12.8 days). The 30-day mortality rate decreased from 4.1% in Group C to 1.3% in Group I, and the 1-year mortality rate decreased from 16.4% to 14.1%. Adherence to osteoporosis medication improved from 57.5% in Group C to 67.6% in Group I.

DISCUSSION:
The findings support the effectiveness of OC, as evidenced by improved surgical timing, reduced hospital stays, lower mortality rates, and enhanced medication adherence. However, limitations such as the single-center design and sample size constrain the generalizability of the results. Future studies should consider complications, cost-effectiveness, and secondary fracture prevention.

CONCLUSION:
Orthogeriatric co-management demonstrates notable benefits in geriatric hip fracture care, including optimized surgical timing, shortened hospitalization, reduced mortality, and improved medication compliance.

REFERENCES:
1. Tarazona-Santabalbina FJ et al., Int J Environ Res Public Health, 2021
2. Shigemoto K et al., Arch Orthop Trauma Surg, 2022
3. Pankratz C et al., Arch Orthop Trauma Surg, 2023

SAFETY OUTCOMES IN PATIENTS TREATED WITH DENOSUMAB IN OUTPATIENT SETTING, HOSPITAL KUALA LUMPUR

[1]Abdul Halim H; [1,3]Tiew WP; [1]Mohd Jeffri NS; [1]Makpol FI; [2]Chong EGM
1. *Department of Pharmacy, Hospital Kuala Lumpur*
2. *Geriatric Unit, Hospital Kuala Lumpur*
3. *Faculty of Pharmacy, University Kebangsaan Malaysia*

INTRODUCTION:
Denosumab has been an alternative antiosteoporosis in osteoporotic patients with contraindications to bisphosphonates in Malaysia. Worldwide data indicate that denosumab was better tolerated compared to bisphosphonates. Our study aimed to explore on the reported safety outcomes among geriatric patients prescribed with denosumab, and its implications on the treatment outcomes.

MATERIALS & METHODS:
This is a retrospective cohort study on medical record review, on geriatric patients prescribed with denosumab. All patients aged 60 years and above, prescribed with at least two doses of denosumab and followed up under Medical and Orthopedic Clinics in Hospital Kuala Lumpur between January 2022 till December 2023 were recruited. Any cases with incomplete history or untraceable record were excluded from the study. Sample size calculation of 206 patients were estimated to achieve a power of 80% with 95% confidence interval (CI). Demographic, clinical data and safety outcomes were presented descriptively, while factors associated with adverse events were assessed using Logistic Regression in RStudio version 2023.12.1+402. P-value less than 0.05 is considered significant.

RESULTS:
Out of 439 patients screened, only 200 patients were recruited into this study. The mean age ± standard deviation (SD) of the recruited patients is 77.3±8.3 years old with 84.7% of them were female. Most of the patients were able to ambulate independently (75.7%) and 43% of the patients had clinical frailty scale (CFS) of 5. Almost 80% of the patients had diagnoses of cognitive impairments and 92% had more than five comorbidities. The mean treatment duration with denosumab is 29.7±20.8 months. Approximately 23% of the patients experienced adverse events while on treatment and 81.2% had injection delay. Underlying pulmonary disease (OR: 3.1, CI: 1.1-9.7) and CFS > 5 (OR: 2.6, CI: 1.3-10.6) were significantly associated with adverse events risk.

DISCUSSIONS:
Frail patients (CSF 6 & 7) experienced more side effects with denosumab (infection: 12.4%). Any delays in denosumab need to be investigated to rule out adverse events related.

CONCLUSION:
There is a need for thorough screening and monitoring of safety outcomes with denosumab since the current data might be under reported.

REFERENCES:
1. Chen Y et al. Efficacy and safety of denosumab in osteoporosis or low bone mineral density postmenopausal women. Front. Pharmacol., 14 April 2021.12:588095.
2. Kim SJ et al. A retrospective analysis of nonresponse to denosumab after hip fractures. Acta Orthopaedica Belgica, 2023, 89 (1), 71-76.
3. Rhee Y et al. Real-world safety and effectiveness of denosumab in patients with osteoporosis: a prospective, observational study in South Korea. Endocrinology and Metabolism 2022;37(3):497-505.

SHORT-TERM OUTCOME OF CEMENTED AUSTIN MOORE ARTHROPLASTY IN OCTOGENARIANS WITH FRAILTY INDEX OF 5 AND PARKER MOBILITY SCORE LESS THAN 6 FOR FEMORAL NECK FRACTURES IN RESOURCE-CONSTRAINED SETTINGS

[1]Abesamis Julius Bryan MD, [1]Tanchuling Pedro Juan Diego, MD, [1]Tabu, Irewin MD and [1]Bernardo, Peter MD
1. *Department of Orthopedic, Philippine General Hospital*

INTRODUCTION:
Femoral neck fractures are a common orthopedic challenge, particularly among the elderly population, often necessitating surgical intervention such as unipolar arthroplasty with the Austin Moore Prosthesis.

Frailty index assessments play a crucial role in identifying high-risk patients. Quality of life outcomes can be measured using tools like the EQ-5D-5L questionnaire, while morbidity and mortality rates provide insights into short-term surgical outcomes.

The study aims to evaluate the effectiveness of the Austin Moore Prosthesis in achieving favorable short-term clinical outcomes in octogenarians diagnosed with femoral neck fractures and a frailty index of 5. Specifically, the study will assess the patients' EQ-5D-5L scores to gauge their health-related quality of life following the surgical intervention.

MATERIALS & METHODS:
This ambispective study examined octogenarian patients with femoral neck fractures who underwent unipolar arthroplasty with the Austin Moore Prosthesis, focusing on those with a frailty index of 5 and Parker Mobility Score Less than 6. Data collected included demographic details, frailty index scores, EuroQOL 5D-5L responses, and 30-day morbidity and mortality rates.

RESULTS:
Among octogenarians with femoral neck fractures and a frailty index of 5 and Parker Mobility Score Less than 6 who underwent surgery with the Cemented Austin Moore Prosthesis, outcomes were analyzed. The study revealed significant findings related to postoperative pain control, functional outcomes, and quality of life as measured by the EQ-5D-5L. Morbidity and mortality rates within 30 days post-surgery were also examined.

DISCUSSIONS AND CONCLUSION:
The findings underscore the importance of considering frailty index scores in surgical decision-making for femoral neck fractures in octogenarian patients. Additionally, the study highlights the utility of the Cemented Austin Moore Prosthesis in this demographic, albeit with considerations for pain management and postoperative complications. Insights gleaned from this research contribute to optimizing treatment strategies and improving outcomes for elderly patients with femoral neck fractures.

PREOPERATIVE DEEP VEIN THROMBOSIS IN ELDERLY PATIENTS WITH HIP FRACTURES: THE RISK AND PREVALENCE

[1]Muhammad Rajaei AMZ, [2]Mohd Khazran H, [1]Shaifuzain AR, [1]Amran AS

1. *Department of Orthopaedis, School of Medical Sciences, Universiti Sains Malaysia 16150 Health Campus Kubang Kerian , Kota Bharu, Kelantan, Malaysia*
2. *Hospital Sultan Ismail Petra, Kuala Krai*

INTRODUCTION:
Hip fractures are common in the elderly population after a fall. Consequently, they are at a high risk of developing complications such as venous thromboembolism, deep vein thrombosis (DVT) and pulmonary embolism (PE), which may cause significant morbidity and mortality. To date, there are no local data regarding the prevalence of DVT before surgery in elderly patients with hip fractures and risk factors associated with it. This study aimed to establish the prevalence of DVT in elderly patients following a hip fracture in the local population and evaluate the risk factors for the occurrence of preoperative DVT in this population.

METHODS:
This research is a retrospective cross-sectional study involving 118 patients with a history of hip fracture and received treatment in HUSM from January 2014 to November 2020. Patient screening was conducted via the PACS (Picture Archiving and Communication Systems) system and the patients' medical records. Patients with hip fractures and had ultrasound Doppler of lower limb one day before surgery were selected. All selected risk factors, including demographic data information was then recorded in a study proforma. Data were entered in Microsoft Excel and analysed using SPSS version 26.0.

RESULTS:
The overall prevalence of preoperative deep vein thrombosis in elderly patients with hip fracture was 5.4 %. The mean duration of immobilisation in DVT patient is 18.4 days. None of them received Enoxaparin as prophylaxis. Two out of five DVT patients had underlying malignancy.

DISCUSSIONS:
Prevalence for developing VTE in the elderly with hip fracture ranged from 9-12.7%, with the majority occurring postoperatively [1]. This study is the earliest to provide local data for prevalence and risk factors of preoperative DVT among the elderly with hip fracture in this population. The

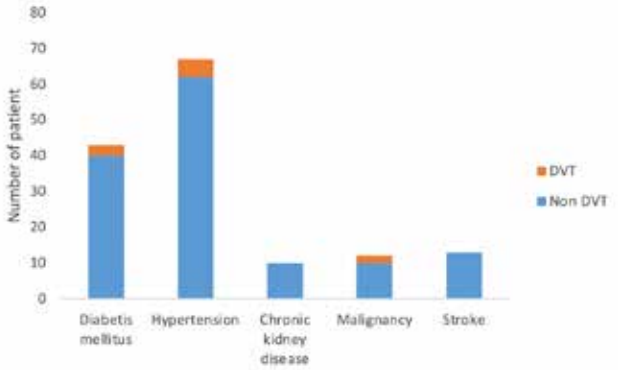


Figure 1: Patient distribution based on comorbidity

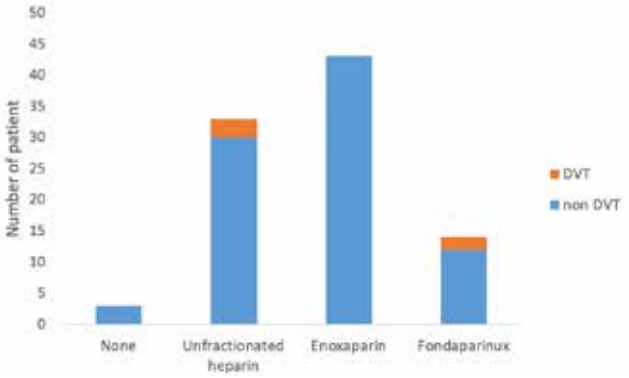


Figure 2: Patient distribution based on DVT prophylaxis used

prevalence of DVT in the elderly with hip fracture was 5.4 %, which was relatively similar to previous studies.

CONCLUSION:
The critical risk factors for DVT development were the duration of immobilisation, types of DVT, prescribed prophylaxis and malignancy.

REFERENCES:
Smith EB, Parvizi J, Purtill JJ. Delayed surgery for patients with femur and hip fractures-risk of deep venous thrombosis. J Trauma. 2011;70(6): E113–6.

CLINICAL OUTCOMES IN OSTEOPOROTIC PATIENTS TREATED WITH BISPHOSPHONATES IN OUTPATIENT SETTING, HOSPITAL KUALA LUMPUR

[1]Abdul Halim H; [1,3]Tiew WP; [1]Mohd Jeffri NS; [1]Makpol FI; [2]Chong EGM
1. *Department of Pharmacy, Hospital Kuala Lumpur*
2. *Geriatric Unit, Hospital Kuala Lumpur*
3. *Faculty of Pharmacy, University Kebangsaan Malaysia*

INTRODUCTION:
Approximately 5880 cases of fragility fractures were reported in 2018 and it is projected to increase to 20893 cases in 2050 in Malaysia. Timely treatment initiation and good adherence with antiosteoporosis are pertinent to prevent the complications of osteoporosis. Our study aimed to describe the demographic and clinical characteristics of geriatric patients who received bisphosphonates, and their treatment outcomes with this agent.

MATERIALS & METHODS:
This is a retrospective cohort study on medical record review, on geriatric patients prescribed with bisphosphonates. All patients aged 60 years and above, prescribed with at least 6 months of bisphosphonates and followed up under Medical and Orthopedic Clinics in Hospital Kuala Lumpur between January 2022 till December 2023 were recruited. Any cases with incomplete history or untraceable record were excluded from the study. Sample size calculation of 112 patients were estimated to achieve a power of 80% with 95% confidence interval (CI). Demographic and clinical data were presented descriptively, while factors associated with recurrent fracture event were assessed using Logistic Regression in RStudio version 2023.12.1+402. P-value less than 0.05 is considered significant.

RESULTS:
Out of 413 patients screened, only 127 patients were recruited into this study. The mean age ± standard deviation (SD) of the recruited patients is 76.3±9.9 years old with 90.6% of them were female. Most of the patients were able to ambulate independently and 41.3% of the patients had clinical frailty scale (CFS) of 4. Almost half (43.3%) of the patients had a history of fracture and only 14 patients had Vitamin D level screened. The mean treatment duration with bisphosphonates is 47.5±36.9 months with treatment persistency of 67.8±15.9%, and 67.7% of them had recurrent fractures while on treatment. Previous fracture history (OR: 3.1, CI: 1.8-5.3), persistency rate <85% (OR: 1.9, CI: 1.1-8.3) and CFS > 5 (OR: 6.1, CI: 3.2-12.6) were significantly associated with refracture risk.

DISCUSSIONS:
Persistency rate with bisphosphonates declined with the length of treatment duration. Frail patients experienced more side effects with bisphosphonates (GI symptoms: 52%), resulting in lower persistency rate (31.4±7.2%) and higher recurrent fracture risk.

CONCLUSION:
These data from a real-world setting indicate a need for thorough monitoring on tolerability with bisphosphonate treatment especially among frail individuals.

REFERENCES:
Subramaniam S, et al. Development of Osteoporosis Screening Algorithm for Population Aged 50 Years and above in Klang Valley, Malaysia. Int J Environ Res Public Health. 2020 Apr 7;17(7):2526.

Hu Q, et al. Comparative efficacy and safety of bisphosphonate therapy for bone loss in individuals after middle age: A systematic review and network meta-analysis, Nano TransMed, 2022, 1 (1): e9130003.

ASSESSING THE IMPACT OF CHRONIC KIDNEY DISEASE (CKD) AND TYPE 2 DIABETES MELLITUS(T2DM) ON TRABECULAR BONE SCORE (TBS) IN POSTMENOPAUSAL WOMEN WITH OSTEOPOROSIS: PRE AND POST TREATMENT ANALYSIS

[1]Pinijprapa, Panukorn; [1]Suwansri, Yoddoi; [1]Tutaworn, Teerapat; [1]Phruetthiphat Ong-Art
1. Phramongkutklao hospital, Bangkok, Thailand

INTRODUCTION:
Bone mineral density (BMD) is widely used in osteoporotic patients but TBS has the advantage of detecting missed one by using dual-energy X-ray absorptiometry (DXA). No study has focused on the combined effect of T2DM and CKD on TBS in osteoporotic patients. We aims to investigate the effect of CKD and T2DM on the efficacy of osteoporotic treatment by evaluating the change in TBS and BMD before and after treatment with anti-resorptive drugs in postmenopausal women.

MATERIALS & METHODS:
253 Thai Postmenopausal osteoporotic women with a mean age of 71.77±8.07 years who were treated with anti-resorptive drugs. TBS and BMD were measured before and after treatment comparing at 1 year and 2 years. The correlation between TBS and BMD in each model will be assessed in terms of CKD, T2DM and drug administration.

RESULTS:
6 models were analyzed for the bone density changes from baseline to 2-year follow-up. Age, CKD and T2DM showed significant differences in both BMD and TBS. Combining both DM and CKD, TBS at L3 and BMD at L4 showed significant differences. Summation of all three factors, average TBS, TBS at L3 and L4, and BMD at L4 showed significant differences at 2-year follow-up. Patients with more than two risk factors were likely to have worse BMD and TBS compared to patients with no risk factors. The injection group had significantly improved in lumbar BMD at 2-year follow-up.

CONCLUSION:
Age, CKD, and T2DM appear to be significant factors affecting bone quality in both the lumbar spine and hip, as assessed by BMD and TBS especially in patients with multiple factors. The injection group may demonstrate superior outcomes compared with oral medication, and BMD more clearly reveals the progression after the treatment compared to TBS.

Figure 1: Table of TBS and BMD evaluation in each models

PREDICTORS FOR EXCELLENT OUTCOME AFTER HIP REPLACEMENT FOR ELDERLY FEMORAL NECK FRACTURE

[1]Tatiyaworakulwong, Sunsern; [1]Pinijprapa, Panukorn; [2]Woratanarat, Pattarawan; [1]Phruetthiphat, Ong-Art
1. *Phramongkutklao Hospital, Bangkok, Thailand*
2. *Ramathibodi Hospital, Bangkok, Thailand*

INTRODUCTION:
Femoral neck fracture leads to loss of function and independence. Bipolar hemiarthroplasty (BHA) is a common surgical treatment for with good outcomes. Previous studies focus either surgical parameters or medical factors on the outcome after hip replacement. However, lack of evidence identifies both parameters prediction the outcome together. We aims to determine the predictive factors associated with excellent outcome and to develop an integrated scoring system predicting the outcome after hip replacement in elderly patients with a femoral neck fracture.

MATERIALS & METHODS:
A retrospective study was conducted from January 2015 to December 2021. Elderly patients with low-energy femoral neck fractures who underwent BHA and at least a year of follow-up were included. Demographics, comorbidities and surgical parameters of the patients were all evaluated. HHS was evaluated at one-year follow-up as having excellent or non-excellent outcomes. Regression analysis was used to identify the independent predictors for a functional outcome. Integrate Scoring System in elderly patients with Isolated femoral neck fracture ($ISSI_{FN}$) was developed.

RESULTS:
348 elderly patients who underwent BHA were included for regression analysis. Multivariate analysis revealed that the following factors were significantly associated with an excellent outcome after BHA: Age <70 years, lower ASA class, Charlson comorbidity index (CCI) ≤5, GFR ≥60, hip BMD >-2.5, Length of stay ≤5 days, Dorr type A, Cementless femoral stem, and Collar type. The $ISSI_{FN}$ score ranged from 0 to 12 and the cut- off score of at least 6 was found to have the highest discriminatory power to determine the excellent functional outcome, achieving an area under the ROC curve of 0.757, with a sensitivity of 60% and a specificity of 75%.

CONCLUSION:
The $ISSI_{FN}$ score is a practical for orthopedic surgeons for predicting excellent functional outcomes after hip replacement in elderly patients with femoral neck fracture. Those patients with non-excellent outcome at 2 weeks follow up in out-patient department require additional motivation and aggressive rehabilitation program for enhancing functional recovery.

Table 4 Multivariate analysis, and predictive score for excellent outcome

Factors	Adjusted OR* (95% CI)	P-value	Coefficient	Predictive Score
Age				
<70 years	4.91 (2.12-11.39)	**0.016**	1.59	**2**
≥70 years	1.00			0
ASA class				
I, II	1.34 (0.60-2.98)	0.276	0.29	**1**
III	1.00			0
CCI				
≤5	9.74 (4.00-23.71)	0.128	1.23	**2**
>5	1.00			0
Length of hospital stay				
≤5	3.43 (0.37-3.17)	0.122	1.39	**2**
>5	1.00			0
eGFR (ml/min)				
≥60	1.52 (0.48-1.33)	0.357	0.42	**1**
<60	1.00			0
Hip BMD				
> -2.5	2.08 (0.06-1.53)	0.070	0.73	**1**
≤ -2.5	1.00			0
Morphology of Proximal femur				
Dorr type A	1.72 (0.44-1.53)	0.276	0.54	**1**
Dorr type B, C	1.00			0
Type of femoral stem				
Cementless	1.94 (0.35-1.69)	0.200	0.66	**1**
Cemented	1.00			0
Collar	2.19 (1.11-2.68)	0.415	0.78	**1**
Collarless	1.00			0

ASA class: American society of anesthesiologist classification; CCI: Charlson comorbidity index; GFR: Glomerular filtration rate; BMD: Bone mineral density; OR: Odd ratio

Figure 1: ISSIFN score

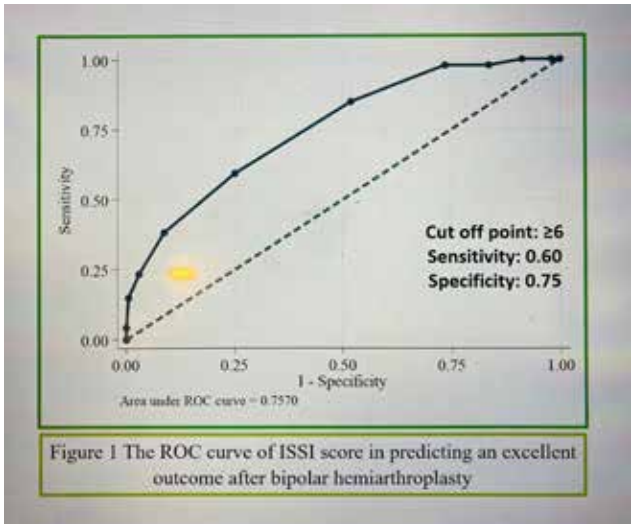


Figure 1 The ROC curve of ISSI score in predicting an excellent outcome after bipolar hemiarthroplasty

Figure 2: ROC curve

FALLS, FRACTURES AND FRAILTY IN OLDER PERSONS WITH ATRIAL FIBRILLATION ON NON-VITAMIN K ANTAGONIST ORAL ANTICOAGULANTS (NOACS)

Z.Y. Lee[1], K.M. Tan[2], V.W.F. Boey[3], S.S.L. Goh[2], W.C. Cheah[1], N.K Kunaseelan[4]

1. *Universiti Malaya Medical Program, Faculty of Medicine, Universiti Malaya*
2. *Division of Geriatric Medicine, Department of Medicine, Faculty of Medicine, Universiti Malaya*
3. *Masters in Internal Medicine Program, Department of Medicine, Faculty of Medicine, Universiti Malaya*
4. *Department of Pharmacy, Universiti Malaya Medical Centre*

Introduction
The prevalence of atrial fibrillation(AF) increases with age. Non-vitamin K Antagonist Oral Anticoagulants(NOACs) are becoming the mainstay of stroke prevention in AF. Complex frail older persons with AF are also at increased risk of falls and fractures. The objective of this study is to determine the prevalence and outcomes of falls and fractures in frail older persons with AF on NOACs.

Materials and Methods
This is a retrospective observational study. Frail older persons with AF started on a NOAC from January 2016 to December 2017 with a history of falls and fractures were included. Frailty was defined using the Clinical Frailty Scale(CFS) v2.0 where CFS 4 to 8 were defined as frail. Ethics approval was obtained from our hospital medical research ethics committee. (No:2021930-10626)

Results
228 frail older persons (average age 77.35 ± 7.19) on NOACs were studied. 39(17.1%) suffered a fall and 14(6.1%) suffered a fracture during treatment with NOACs. The location of the fractures were; seven femur(41.2%), two spine(11.8%), two radius(11.8%), one humerus(5.9%) and five others (rib, ankle, nasal bone, clavicle and zygomatic fractures). Five(35.7%) required surgery and the average length of time from fracture to surgery was 7.2 (range 3 to 17) days. None of them required blood transfusion and none received a NOAC reversal agent.

Discussion
A significant percentage of frail older persons with AF on NOACs fall and fracture. It is important to weigh the risks and benefits of anticoagulation in frail older persons with AF.

However, frailty and falls are not absolute contraindications to anticoagulation. Instead, the opportunity should be taken to tailor treatment to the frail patients' characteristics to minimise falls, fracture and bleeding risk. Clinicians should also know the characteristics of the different NOACs in case there is need for urgent surgery post-trauma.

Conclusion
One in six frail older persons with AF on NOACs fall and one in three who fall suffered a fracture. Falls prevention and good knowledge and utility of NOACs are vital in complex frail older persons with AF.

INDEPENDENT WALKING DISABILITY AFTER FRAGILITY HIP FRACTURES: A PROGNOSTIC FACTORS ANALYSIS OF A RETROSPECTIVE COHORT STUDY

[1]Chanthanapodi, Praphan; [2]Thammata, Netnapha; [3]Laoruengthana, Artit; [3]Jarusriwanna, Atthakorn
1. *Department of Orthopedics, Somdejphrajaotaksin Maharaj Hospital, Tak, Thailand*
2. *Department of Rehabilitation, Somdejphrajaotaksin Maharaj Hospital, Tak, Thailand*
3. *Department of Orthopaedics, Faculty of Medicine, Naresuan University, Phitsanulok, Thailand*

INTRODUCTION:
Walking disability after fragility hip fractures leads to later morbidities and mortality. Nearly one-third of the patients remained totally dependent or in a nursing home[1]. This study aimed to evaluate the factors associated with independent walking disability in the early postoperative period after hip fracture surgery.

MATERIALS & METHODS:
This retrospective cohort study involved 394 fragility hip fracture patients aged ≥60 years. Related factors including preoperative demographics, perioperative, and postoperative factors were collected. The prognostic factors were evaluated by multivariable risk ratio regression analysis. The endpoint was the independent walking disability at 6 weeks after surgery.

RESULTS:
110 patients (27.9%) were disabled, whereas 284 patients (72.1%) could walk independently. The multivariable risk ratio regression analysis showed that patients with age ≥80 years, pre-fracture walking with the gait aid, having ≥2 underlying comorbidities, hypoalbuminemia (serum albumin ≤3.5 g/dL), and the presence of at least one of the postoperative complication were significantly associated with independent walking disability at the early postoperative period of 6 weeks (Table 1). The combined predictive accuracy was 80% (The area under the receiver operating characteristic (AuROC) = 0.80) (Figure 1).

DISCUSSIONS:
The steady recovery of the ADL in hip fracture patients begins approximately 6-8 weeks after fracture[2]. Any postoperative complications that occur after surgical intervention impact walking ability and the long-term consequence of overall functional recovery. Patients with previous use of gait aid before hip fracture are prone to have instability gaits and falls, while patients with hypoalbuminemia are correlated to malnutritional status. Lastly, older patients with underlying several medical comorbidities are straightforwardly associated with recovering ability after hip fracture surgery.

CONCLUSION:
The presence of postoperative complication was realized as the most influential predictor of independent walking disability within the first 6 weeks after fragility hip fracture surgery. Healthcare providers should concentrate on patients with a high risk of independent walking disability to prevent further morbidities.

REFERENCES:
1. Dyer et al. BMC Geriatr. 2016;16(1):158.
2. Magaziner et al. Nestle Nutr Inst Workshop Ser. 2015;83:71-81.

Prognostic factors	RR	95% CI	*p*-value
Age ≥80 years	1.65	1.21-2.25	0.001
Pre-fracture walking with the gait aid	2.03	1.53-2.69	<0.001
Having ≥2 underlying comorbidities	1.63	1.19-2.23	0.002
Hypoalbuminemia	1.74	1.32-2.29	<0.001
Kidney impairment	1.16	0.84-1.60	0.357
Presence of the intraoperative complication	1.29	0.93-1.79	0.130
Presence of the postoperative complication	2.04	1.37-3.02	<0.001

Table 1: Risk ratio of the prognostic factors

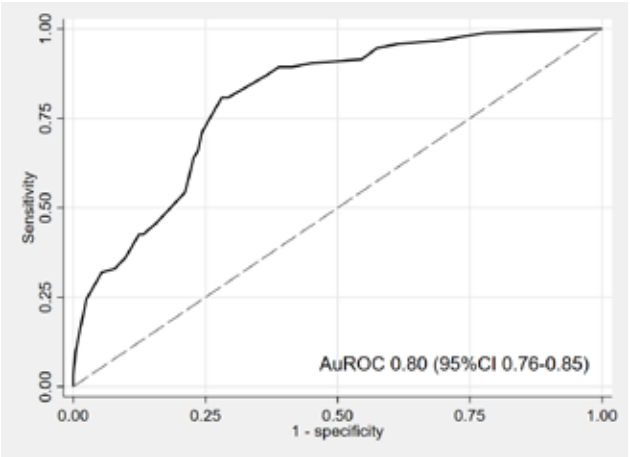


Figure 1: The AuROC of combined 5 factors

EXPLORING THE NEXUS BETWEEN REPRODUCTIVE FACTORS AND OSTEOPOROSIS RISK IN POSTMENOPAUSAL WOMEN: INSIGHTS FROM STUDIES IN MALAYSIA

[1]Sharifudin, Mohd Ariff; [1]Nordin SH; [2]Mohamed SZ; [1]Taib MNA; [1]Kamudin NAF
1. *Faculty of Medicine, Universiti Sultan Zainal Abidin, Malaysia,*
2. *Faculty of Medicine, Universiti Kebangsaan Malaysia*

INTRODUCTION:
In Malaysia, numerous studies have explored the potential relationship between female reproductive factors and osteoporosis among postmenopausal women (PMW); however, consensus remains elusive due to fragmented findings. This systematic review aims to evaluate this relationship and its implications for bone density in this population.

MATERIALS & METHODS:
A systematic search was conducted across multiple databases until June 2022 (PubMed, Scopus, Medline, EBSCOhost, and WoS). Case-control and cross-sectional studies examining the relationship between year-since-menopause (YSM), parity, lactation, and osteoporosis were included. Study quality was assessed using the Newcastle-Ottawa appraisal tool, and findings were synthesized qualitatively.

RESULTS:
Nine studies (eight cross-sectional and one case-control) met all the inclusion criteria. Meta-analysis included data from five studies, with a pooled sample size of 1134 PMW. Studies generally found a weak inverse link between YSM and bone density (r= -0.17 to -0.439). Two studies indicated that non-osteoporotic PMW had fewer pregnancies compared to osteoporotic counterparts, although the association's strength was weak (r=-0.162). Limited data hindered definitive conclusions on the predictive value of menopause duration and parity for osteoporosis. Findings on lactation were inconsistent, with one study reported shorter lactation periods in non-osteoporotic women. Lactation displayed conflicting predictive associations with osteoporosis.

DISCUSSION:
This review clarifies current research progress in identifying osteoporosis risk factors in Malaysian PMW. Challenges include study design limitations and lack of standardized definitions. Due to inconsistent findings and limited data, it is challenging to confirm whether YSM and parity can reliably predict osteoporosis. Ultimately, the goal is to create a robust Malaysian-specific osteoporosis risk assessment screening tool that relies less on DXA scans and more on predictors (strong risk factors).

CONCLUSION:
The relationship between reproductive factors and osteoporosis risk in Malaysian PMW demonstrated a modest correlation and warrants further investigation with comprehensive adjustments for confounding variables.

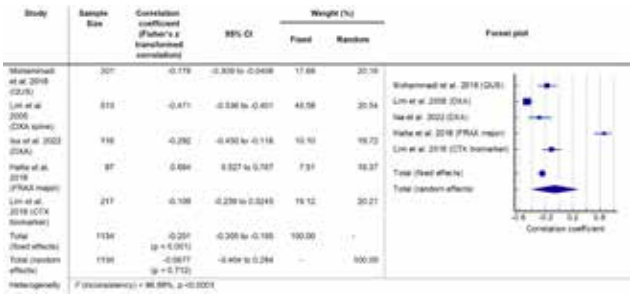


Figure 1: Forest plot of correlation between YSM with osteoporosis indices

Figure 2: Meta-analysis of the comparison of parity between PMW with osteoporosis versus PMW without osteoporosis

RETROSPECTIVE ANALYSIS OF CHARACTERISTICS AND OUTCOMES OF PATIENTS WITH PARKINSON DISEASE ADMITTED TO AN ORTHOGERIATRIC UNIT WITH A FRACTURE OF THE FEMUR. A MISSED OPPORTUNITY TO CARE?

Senevirathne S.A.A, Shah K, Ralhan S
Department of Geriatric Medicine, John Radcliffe Hospital, Oxford, United Kingdom

Introduction
Patients with Parkinson disease (PD) carry a higher risk for falls and fractures. Perioperative care in these patients can be challenging due to high risk of perioperative complications.

Material and methods
Data was collected using an electronic database retrospectively. PD patients admitted to John Radcliffe hospital from June/2018 to June/2023 were included. Sociodemographic data, PD characteristics and follow up, details related to fracture, post operative care and mortality were collected. Data was analyzed using SPSS23.

Results
100 PD patients were included in this cohort with 52 males and 48 females. The mean age was 81.7 years (63 - 97). Mean duration of PD was 5.07 years (0 – 20). 69 % and 49% had cardiovascular disease and dementia respectively. There were 56% of patients with BMI less than 23 and 17 % under 18.5. 85% of patients were seen in PD/neurology clinic but 86% of patients who attended clinic were not on bone protection nor had fracture risk assessment. Average time to surgery from admission was 37.59% hours (7.18-167.16). The most common complication after surgery was acute delirium (71%).

The average length of hospital stay was18.72 days (2.1 - 76.7) which was 4.38 days more than usual length of hospital stay. Inpatient mortality rate was 9% compared to 7.4% of overall crude mortality rate during this period. The mortality rate after the first year was 32.43%.

Discussion
Patients with PD who admitted following femur fracture were found to have a higher average length of hospital stay, more post op delirium. A significant number of patients had low BMI. Most of the patients were seen in the Parkinson clinic but did not have a fracture risk assessment prior to the fracture.

Conclusion
Fracture risk, nutritional state assessment and optimization are potential interventions which can be carried out in PD clinics.

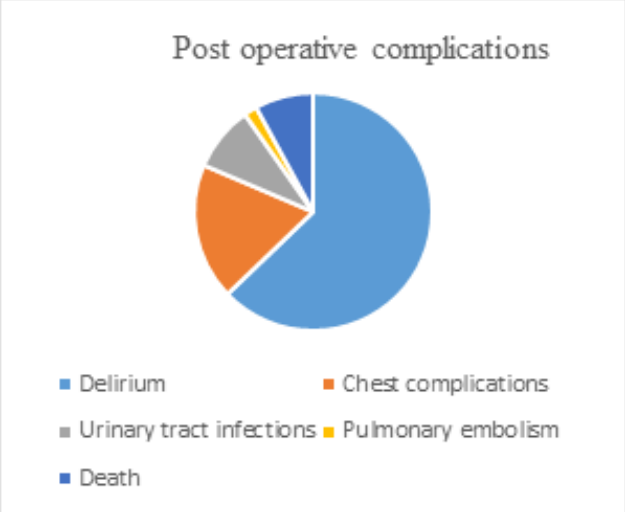


Figure 1

OUTCOMES AND SURGERY TIMING FOR ELDERLY FRAGILITY HIP FRACTURE IN A DISTRICT HOSPITAL, MALAYSIA

[1]Sam CX; Ameera N; Sharru S; Siti NW; Khartik K; Ong CS; Mashayati M
1. Orthopedics Department, Hospital Kajang, Selangor, Malaysia

INTRODUCTION:
Fragility hip Fracture (FHF) is common in the elderly and poses a substantial burden to the public hospitals in Malaysia. There is pressure on public hospitals to deliver prompt surgical fixation. This study assessed the trauma-to-surgery time and outcomes.

MATERIALS & METHODS:
A cross-sectional study was conducted on all elderly patients above 60 years old who underwent hip surgery from 1 January 2023 till 31 December 2023. The mean follow-up time was 6.2 months ± 4.

RESULTS:
A total of 64 patients underwent hip surgery in 2023. 37 (57.8%) of the patients had sustained an extracapsular fracture. Higher complications rate reported in intracapsular surgery patients. Only 13 (20.3%) patients underwent operation within three days. The majority of causes of the delay in surgery are due to medical conditions, 20 (45.5%) and 10 (22.7%) because of no operation theatre time. In our study, surgery performed within three days is associated with better outcomes. However, there is no statistically significant in complication rate and Harris Hip score (HHS) for surgery performed within 3 (59.0±34.2)or 5 days(76.6±16.3).

DISCUSSIONS:
This result reflects the current situation in public hospitals in Malaysia. It suggests that trauma-to-surgery timing for extracapsular fragility hip fracture can be allowed up to 5 days for similar outcomes in patients, reducing the burden of the healthcare system.

CONCLUSION:
We concluded that early surgery offers better outcomes for FHF[1]. However, in a centre with huge patient bulk and limited resources, extracapsular fracture trauma-to-surgery timing can allow for up to 5 days to yield similar outcomes.

REFERENCES:
American Academy of orthopedics Surgeon. Management of Hip Fracture in Older Adults.

Trauma-to-surgery timing (days)	N=64(%)
0-3	**13(20.3)**
4-5	**13(20.3)**
6-10	**15(23.4)**
11-15	**16(25.0)**
15-20	**7(10.9)**

Table 1: Trauma-to-Surgery timing

Complication	Surgery timing			
	Less than 3 days N=13 (20.3%)	4-5days N=13 (20.3%)	More than 5 days N=38 (59.4%)	p-value
Intubated	1(1.5)	0	4(0.62)	0.81
Pneumonia	1(1.5)	1(1.5)	5(7.8)	1.00
Pressure Ulcer	1(1.5)	0	3(4.7)	0.81
Re-admission	1(1.5)	0	2(3.1)	1.00
Re-operation	0	0	2(3.1)	1.00
Myocardial infarction	0	0	3(4.7)	0.56
Surgical site infection	2(3.1)	0	5(7.8)	0.54
Mortality	2(3.1)	0	5(7.8)	0.54

Table 2: Surgery Timing and associated Complications

WHICH PERFORMANCE INDICATORS ARE USED GLOBALLY TO EVALUATE HIP FRACTURE CARE AND HOW ARE THEY DEFINED? A MIXED METHODS SYSTEMATIC REVIEW

Veena Mazarello Paes[1], Andrew Ting[1], James Masters[1], Mahalia Paes[2], Simon Graham[1], Matthew Costa[1]
1. *Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK*

INTRODUCTION:
Performance indicators (PIs) are increasingly used to evaluate quality of hip fracture (HF) care.

MATERIALS & METHODS:
This mixed methods systematic literature review, maps the variety of PIs used worldwide and their definitions. Evidence was searched through 12 electronic databases and other sources. The methodological quality of included studies was assessed using Mixed Methods Appraisal Tool. A protocol was published for a suite of related systematic reviews in PROSPERO-ID-CRD42023417515.

RESULTS:
A total of 24,480 articles were reviewed of which 110 heterogenous studies from varied healthcare systems in 32 countries, met the inclusion criteria of the review. Studies were mostly conducted in the high-income countries. The highest number of studies came from the UK (n=29). Only four studies were conducted across eight low- and middle-income countries (LMICs).

PIs were interchangeably called quality standards or quality targets which made our search for relevant studies very challenging. Furthermore, PIs were often undefined or ambiguously defined. For example, the term "early" in surgery had multiple definitions, 'mobilization' had missing or different definitions; and various definitions of 'orthogeriatric assessment' in HF care. However, several PIs appeared commonly including prompt surgical intervention, early orthogeriatric review, early mobilization after surgery and bone health assessment.

DISCUSSIONS:
This review identified many PIs related to the delivery HF care. However, their definitions varied across studies and countries. While some indicators appear regularly in studies from many different countries, many indicators are used in only one healthcare system. Evidence from the LMICs is sparse.

CONCLUSION:
There remains a pressing need for further research into the use and standardization of PIs in HF care and their influence on patient outcomes and economic costs.

REFERENCES:
Schang L et al. What makes a good quality indicator set? A systematic review of criteria. Int J Qual Health Care. 2021 Jul 31;33(3): mzab107

Figure 1: Evidence map

OUTCOMES OF ORTHOGERIATRIC CARE FOR MAJOR NON-HIP LOWER LIMB FRAGILITY FRACTURES

[1]Chua, Tjun Huat Ivan; [2]Ramason, Rani; [1]Koo, Wai Han Wendy; [1]Ku, Li Ting; [1]Tai, Wai Ling Stephanie

1. *Department of Orthopaedic Surgery, Tan Tock Seng Hospital, 11 Jalan Tan Tock Seng, Singapore 308433*
2. *Centre for Geriatric Medicine, Tan Tock Seng Hospital, 11 Jalan Tan Tock Seng, Singapore 308433*

INTRODUCTION:
Multidisciplinary orthogeriatric care for hip fractures led to significant improvements in patient care in the last two decades. Studies increasingly showed that non-hip lower limb fragility fractures contribute significantly to healthcare and socioeconomic burden with loss of quality of life and excess mortality exceeding that of hip fractures [1,2,3,4,5]. As a leading centre in orthogeriatric care, from 2020, major non-hip lower limb fragility fractures were included in orthogeriatric care.

MATERIALS & METHODS:
Admitted patients with major non-hip lower fragility fractures (femur, patella, tibia, ankle, periprosthetic, peri-implant, pelvic-acetabular) aged 60 years and older received multidisciplinary orthogeriatric co-management. Key data (length of stay, inpatient mortality, 30-day readmission, medical complications) was retrieved from our database during the 4-month pre-intervention (Usual Care group) and 2 years post-intervention (Orthogeriatric Care group) periods. These outcomes were compared between the 2 groups.

RESULTS:
29 patients in Usual Care (UC) group were compared to 252 Orthogeriatric (OG) Care group. The OG group was older (77.6 versus 71.7 years), had more females, more frail (clinical frailty score 4 or more). Spread of fracture type (femur, patella, tibia, ankle, pelvic-acetabular, periprosthetic) was similar. 57% of OG group were operated, similar to UC group. The overall length of stay (LOS) in both groups were comparable (UC group 9.2 days, OG group 9.9 days). Operated patients in the OG group had a shorter LOS 10.9 days compared to the UC group of 12.1 days. Conservatively treated patients in the OG group stayed 8.6 days compared to UG group of 5.6 days. However, the differences were not statistically significant. The incidence of medical complications in the OG group was 17.9% compared to 27.6% in the UC group, with a relative risk reduction of 35% (number needed to treat 10.3, p=0.167). There were no statistically significant differences in inpatient mortality and 30-day readmissions in both groups.

CONCLUSION:
Despite a frailer and older OG group, there appears to be a trend towards better patient care, therefore orthogeriatric care should be expanded to major lower limb fragility fractures.

REFERENCES:
1. F. Borgstrom et al, “Fragility fractures in Europe: burden, management and opportunities”, Arch Osteoporos 2020 Jan. [Online].
2. Available: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7166207/
3. L. Sanchez-Riera, N Wilson, “Fragility fractures & their impact on older people”, *Best Pract & Res Clin Rheumatol* 2017 31(2): 169-91.
4. K.L. Holloway et al, “Non-hip and non-vertebral fractures: the neglected fracture sites”, *Osteoporos Int* 2016 27:905-913.
5. D. Bliuc et al, “The impact of nonhip nonvertebral fracture in elderly women and men”, *J Clin Endocrinol Metab* 2014 Feb 99(2):415-423.
6. Global Longitudinal study of Osteoporosis in Women (GLOW) investigators, “Burden of non-hip, non-vertebral fractures on quality of life in postmenopausal women”, *Osteoporos Int* 2012 23:2863-2871.

DETERMINANTS OF FEMORAL BONE CORTICAL THICKNESS (FBCT) IN PATIENTS WITH HIP FRACTURE (HF)

K. Baby[1], W. Srikusalanukul[1], A Fisher[1,2]
1. *Department of Geriatric Medicine, The Canberra Hospital, Australia*
2. *Australian National University Medical School, Canberra, Australia*

Introduction:
Our aim was to identify main factors affecting FBCT, a simple and reliable index of bone quality, in HF patients with chronic obstructive pulmonary disease (COPD).

Material and Methods:
In 106 healthy subjects (control group:45 females, 61 males, mean age 32.0years) and in 426 consecutive HF patients with COPD (295 females and 131 males, mean age 83.4 and 79.7years, respectively) we measured FBCT on a plain X-ray thrice, at levels of 3cm and 10cm below the lesser trochanter of the femur. The FBCT values were correlated with sociodemographic, clinical and laboratory parameters, including bone turnover markers, vitamin D and PTH levels (in total 41 variables).

Results:
The FBCT was significantly influenced by gender and age in both HF patients and controls. For example, FBCT at level of 3cm, in controls was 8.28±1.32mm in males and 7.93±1.78mm in females, and in HF patients it was 6.83±1.32mm and 6.12±1.10mm, respectively (all $p<0.05$). The results were similar at level 10cm. In females with each year of age, risk of low FBCT increases by 4% (OR 1.04, 95%CI 1.01-1.07, p=0.008). Multiple regression analyses identified as independent predictors of low FBCT (lower than that in the 1st quartile in the controls) in females the following characteristics - at level 3cm: age>80 years (OR 1.93), history of transient ischaemic attack (TIA, OR 7.83) and low bone formation marker procollagen type I N- propeptide (PINP <32 mcg/L, OR 2.20); at level 10cm: presence of cardiovascular diseases (OR 1.80), history of TIA (OR 5.24), and smoking (OR 4.78), while diabetes mellitus demonstrated a "protective" effect (OR 0.48). In males the strongest independent indicator/predictor of bone loss was preoperative anaemia (OR 10.55 at level 3 cm and 4.89 at level 10cm).

Discussion and Conclusion:
FBCT, a useful measure of bone status, is determined by sex and age. Reduced FBCT can be used as a valuable index of bone loss / deterioration (and fracture), it is sex-dependent, strongly associated with ageing and specific comorbidities.

FACTORS ASSOCIATED WITH DELAYED SURGERY FOR OLDER HIP FRACTURE PATIENTS

[1]SueChee, Lim; [1]Loh AY; [1]Yap HK; [1]Looi JS; [1]Tiong WJ; [1]Ng CC; [1]Lim HT; [2]Miss Yap SY
1. *Department of Internal Medicine, Hospital Sultan Ismail Johor Bahru, Johor, Malaysia;*
2. *Department of Pharmacy, Hospital Sultan Ismail Johor Bahru, Johor, Malaysia.*

INTRODUCTION:
Delayed hip fracture surgery in older adults correlates with poor outcomes. The study aims to identify the factors associated with delayed surgery >8 days, and evaluate the impact on mortality at our institution.

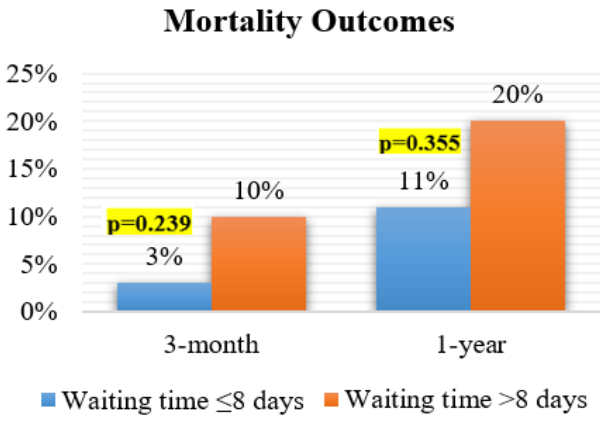
MATERIALS & METHODS:
Retrospective cohort study was conducted among patients aged ≥60 years admitted for hip fracture surgery from July 2022 to December 2023 at our institution. Waiting time (WT) for surgery was classified into ≤8 days and >8days[1]; surgical delay's factors into organizational and clinical. Organizational factors included availability of theatre, staff and implants. Clinical factors included medical optimization, pneumonia, urinary tract infection (UTI). Data collected from patients' electronic medical records, analyzed using univariate analysis to identify factors and outcomes.

RESULTS:
Total 216 patients, with mean age of 77±8 years, 76% were female. 62% (135/216) were operated, all had surgical delay >48 hours, with median time of admission to surgery was 12 days. Surgical delay mainly caused by organizational factors (n=126, 93%). Clinical factors accounted for 73 cases (54%). Surgical delay >8 days associated with longer length of stay (LOS) (p<0.001) and higher mortality outcomes.

DISCUSSION:
Improving theatre availability decreased LOS for fragility hip fracture patients. Patient waiting for surgery >8 days have higher mortality rate than those operated ≤8 days[1]. Addressing medical delays is imperative for optimizing patient care.

CONCLUSION:
Operating theatre unavailability, is the main cause of surgical delays following hip fracture at our institution. These findings can be used to develop protocols to reduce surgical delay.

REFERENCES:
Iamsumang,C., & Diewwattanawiwat, K.(2020). Surgical Delay in Healthy Elderly Patients with Hip Fractures: How Many Days are Acceptable? *Lampang Medical Journal*, *41*(1), 39–48. Retrieved from https://he01.tcithaijo.org/index.php/LMJ/article/view/242809



Graph 1

Availability	WT ≤8 days	WT >8 days	p-value
Theatre	83% (25/30)	95% (91/96)	**0.043**
Staff	37% (11/30)	56% (54/96)	0.061
Implant	10% (3/30)	16% (15/96)	0.478

Table 1: Organizational factors

	WT ≤8 days	WT >8 days	p-value
Medical optimization	33% (3/9)	37% (22/60)	0.154
Pneumonia	11% (1/9)	25% (15/60)	0.357
UTI	11% (1/9)	17% (10/60)	0.671

Table 2: Clinical factors

THE UTILITY AND NECESSITY FOR RADIOGRAPHIC FOLLOW-UP AFTER ARTHROPLASTY FOR GERIATRIC NECK OF FEMUR FRACTURES

Koh JRD[1], Yeo KSA[2], Kon CKK[3], Moo IH[4]
Orthopaedic Surgery, Changi General Hospital, 2 Simei St 3, Singapore 529889

INTRODUCTION:
Hip fractures are a common and debilitating condition posing not only a huge healthcare but also socioeconomic burden. Surgical management for a neck of femur fracture is typically with arthroplasty in the form of total hip arthroplasty or hip hemiarthroplasty. Serial radiographs are typically performed routinely as part of follow-up to look for complications, although their clinical utility in asymptomatic patients is yet to be validated. Our paper therefore aims to review the utility and necessity of radiographic follow-up following arthroplasty for NOF fractures.

MATERIALS & METHODS:
Patients who underwent operative management for acute fragility neck of femur fractures in the year from 1st January 2018 to 31st December 2018 at the author's institution were identified. All patients who underwent surgery, and had at least one pre and one post-operative plain film radiograph of the affected hip were included in this study. Exclusion criteria included patients who had undergone surgery for chronic fractures, avascular necrosis of the femoral head, mortality within 1 year, peri-prosthetic fractures, pathological fractures from metastases, had concomitant injuries, or had inaccessible or incomplete records.

Clinical records were assessed for the number of visits, an abnormal presenting history or clinical examination, as well as changes in management of the patient. The number and type of radiographs were also assessed, and each radiograph analyzed for abnormal findings.

RESULTS:
A total of 157 patients were included in our study with a mean age of 79.5 at the time of surgery, and a mean follow up of 17.3 months. Data was collected from 626 clinical visits and a total of 973 radiographs.

The 3 abnormal radiographic series identified with a corresponding normal consult did not result in a change of management for the patient. A negative change in management was only observed in 1 patient with an abnormal consult and a corresponding normal radiograph.

CONCLUSION:
Post-operative complications following arthroplasty for NOF fractures are likely to result in a symptomatic presentation of the patient. Routine radiographic follow-up provides limited utility in asymptomatic patients and should only be performed if clinically indicated.

IS PRE-FRACTURE FRAILTY AS DETERMINED BY CLINICAL FRAILTY SCALE(CFS) ASSOCIATED WITH HIP FRACTURE OUTCOMES?

[1]HK Yap, [1]AY Loh, [1]WJ Tiong, [1]JS Looi, [1]SC Lim [1]CC Ng, [1]HT Lim
1. Department of Medicine, Hospital Sultan Ismail Johor Bahru, Johor, Malaysia

INTRODUCTION:
Frailty is a clinical syndrome characterised by a state of increased vulnerability to a variety of adverse health outcomes. There are variety of assessment for frailty. One measure that is validated is the Canadian Study of Health and Aging Clinical Frailty Scale (CFS). Our study aim to explore the association of CFS with certain patient characteristics and outcomes.

METHODOLOGY:
Retrospective analysis of data for fragility fracture includes patients ≥60years admitted to orthopedic ward and reviewed by geriatric team between July2022 and December 2023. All patients completed a Comprehensive Geriatric Assessment (CGA)upon geriatric team review and their premorbid frailty status were determined using CFS. Cases transferred to other healthcare facilities were excluded. Data were extracted from electronic medical records for analysis. Patients were stratified into two groups: 'non-frail'(CFS1-3) and 'frail' (CFS4-8). Patients' characteristics (sociodemographic and clinical) and outcomes(readmission rate, mortality and mobility) were compared.

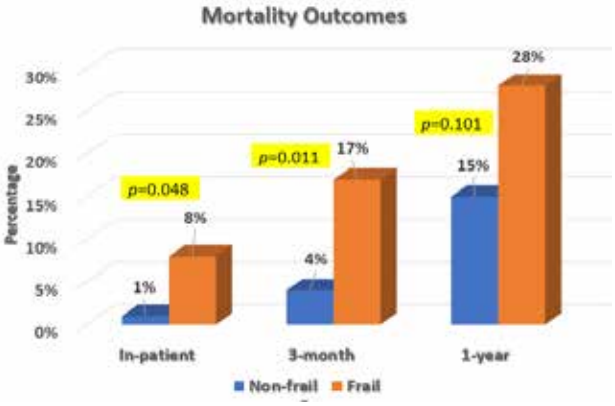
RESULTS:
A total of 216 patients were eligible, of whom 205 (95%) had premorbid CFS score recorded. In all (n=205), 134 (65%) patients were frail(CFS4-8); 130 (63%) were mild/moderately frail(CFS4-6) and 4(2%)were severely frail(CFS 7-8). Proportion of immobile patients higher in frail patients(6% VS 1%, p<0.001) Frail patients less likely to be operated(55% VS 79%, p<0.001)

Frailty was significantly associated with readmission(22% VS 9%, p=0.02), mortality (Graph 1) and mobility outcomes (Graph 2).

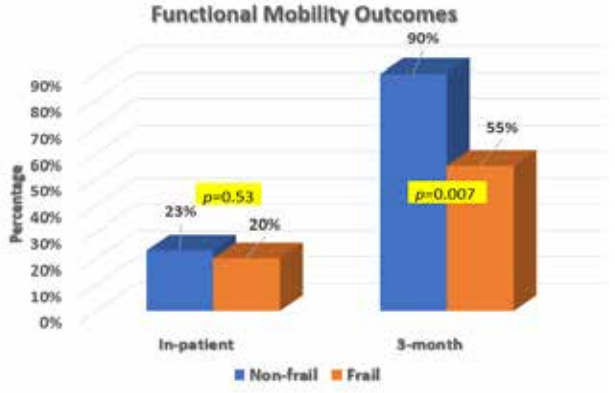
DISCUSSION:
Routine frailty assessment should be advocated as part of standard care for hip fracture patients in order to have prompt surgery as surgery is the independent risk factor for inpatient mortality. Multidisciplinary intervention need to be instituted for those identified to be frail in order to reduce adverse health outcomes.

CONCLUSION:
CFS is an invaluable tool in the prediction of clinical outcomes of fragility hip fracture patients. It provides guidance for individualized care plans from admission to discharge.

REFERENCES:
Rockwood K, Song X, MacKnight C, Bergman H, HoganDB, McDowell I, MitnitskiA. A global clinical measure of fitness and frailty in elderly people. CMAJ. 2005;173(5): 489-495.



Graph 1: Mortality Outcomes



Graph 2: Functional Mobility Outcomes

FALLS, FALL-RELATED INJURIES AND PHYSICAL ACTIVITY: POPULATION-BASED FINDINGS INFORMING POLICY AND PRACTICE

[1,2]Kwok, WS; [2,3]Khalatbari-Soltani S; [4]Dolja-Gore X; [1,2]Oliveira J; [4]Byles J; [1,2]Sherrington C

1. *Institute for Musculoskeletal Health, Sydney Musculoskeletal Health, The University of Sydney and Sydney Local Health District, Sydney, Australia*
2. *School of Public Health, Faculty of Medicine and Health, The University of Sydney, Australia*
3. *ARC Centre of Excellence in Population Aging Research (CEPAR), The University of Sydney, Sydney, Australia*
4. *School of Medicine and Public Health, The University of Newcastle, Australia*

INTRODUCTION:
Falls and physical inactivity increase with age. The World Health Organization recommends adults to undertake 150-300 minutes of moderate-intensity physical activity weekly. The relationship between physical activity and falls and injurious falls could be different between different generations and may change over time.

MATERIALS & METHODS:
Data from the Australian Longitudinal Study on Women's Health. Falls (non-injurious and injurious falls) and physical activity were self-reported every three years since 1998 in the 1921-26 and 1946-51 cohorts. We examined if there were any differences in physical activity and falls and injurious falls between women born 1921-26 (mean (SD) age: 75 (1) years, 1999 survey, n=8,403) and women born 1946-51 (71 (1) years, 2019 survey, n=7,555) cross-sectionally (1). In the 1946-51 cohort, we examined the bi-directional associations between physical activity and falls from middle age (51(1) years, 1999) to older age (71(1) years, 2019 survey, n=11,759) using three-year lagged generalised estimating equations, adjusted for directed acyclic graph-informed covariates.

RESULTS:
More women experienced falls (29% versus 22%) and achieved the recommended level of physical activity (59% versus 43%) in cohort born later (1946-51) than women born earlier (1921-26). In both cohorts, participation in the recommended level of physical activity or above were associated with reduced non-injurious and injurious falls (Figure 1). Prospectively, physical activity participation of 150-300 minutes/week or above was associated with reduced injurious falls risk three years later ($OR_{150\text{-}300min}$:0.87, 95%CI 0.79-0.96; $OR_{\geq 300min}$:0.85, 95%CI 0.78-0.93).

Women who reported injurious falls had lower odds of undertaking various amounts of physical activity subsequently (OR:0.75, 95%CI 0.68-0.82; 0.69, 95%CI 0.63-0.75; 0.64, 95%CI 0.59-0.70 for 1-<150, 150-<300 and ≥300 minutes/week respectively).

DISCUSSIONS:
Generational differences were found with more falls and more physical activity in the women born later. Participation in 150-300 minutes of physical activity weekly was associated with reduced falls cross-sectionally and prospectively. Women who reported injurious falls had lower odds of undertaking various amounts of physical activity prospectively.

CONCLUSION:
Falls remains prevalent among older adults. The prospective bi-directional association between physical activity and falls supports addressing falls through promoting activity, but also providing awareness for promoting activities through reducing non-injurious and injurious falls.

REFERENCES:
Kwok et al. Differences in Falls and Physical Activity in Older Women From Two Generations. J Gerontol A biol Sci Med Sci. Series A, Biological Sciences 79(4), doi.org/10.1093/gerona/glae033

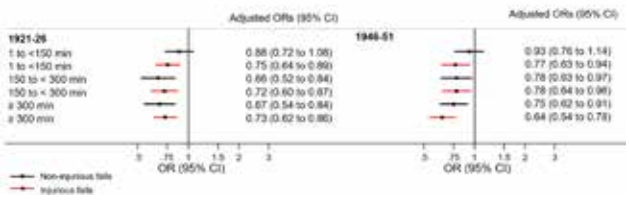


Figure 1: Association between amounts of weekly physical activity participation and falls in 1921-26 and 1946-51 born cohort

HIP FRAGILITY FRACTURES IN A TERTIARY CARE HOSPITAL: WHERE ARE WE NOW?

[1]Muhd Akmal R, [1]Anis Hazira ZA,[1]Abdul Hafiz MNH, [1]Han CS , [2]Mohd Iqbal HS
1. *Orthopaedic Department, Hospital Sultan Ahmad Shah, Temerloh, Pahang, Malaysia*
2. *Orthopaedic Department, Tengku Ampuan Rahimah Hospital, Klang, Selangor*

BACKGROUND:
Hip fractures in elderly are significant global concern, as prevalence is expected to increase as our population ages. Despite the proportion of hip fracture patients with fragile health and multiple complex medical condition rises, there is a lack of local data on the patient factors that influence the decision to offer surgery to these individuals. The objective of this clinical audit is to determine the specific clinical characteristic of patient afflicted with fragility hip fractures and assess factors that may contribute in treatment decision and compliance to preventive measures for secondary fractures

METHODOLOGY:
A retrospective analysis of 176 for osteoporotic hip fractures aged more than 60 years old and above who were admitted to Hospital Sultan Haji Ahmad Shah (HOSHAS), Temerloh, during the period January 2022 to December 2023 due to fragility hip fractures.

RESULTS :
Out of 176 patients, 36.9 % underwent surgical intervention while 63.1 % opted for conservative management, waiting time for surgical intervention – 61.5% had their surgeries after more than 7 days post trauma. Of the total number of hip fragility fracture patients, 69.6% were stratified as ASA I – II, while the rest consisted of ASA III-IV patients.

DISCUSSION:
Our study findings indicate that non-operative patients tended to be older compared to those who underwent surgeries. A significant proportion (56%) of patient classified as ASA 1 and 2 did not received surgical intervention.

Pre-fracture mobility status played a role in the decision making process for surgical interventions. Individuals who were able to mobilize independently prior to the fracture were more likely to opt for operative treatment.

We found in our study there is a significant underutilization of anti-osteoporosis medication among patient discharge with fragility fractures. 86.4% of patients were not started on anti-resorptive or bone building medications on discharge. This highlights the need of increase medical education and resources to effectively address the growing osteoporosis epidemic and provide support for individuals managing fragility hip fractures. It is important to improve doctor – patient communication to ensure that patient and their families understand the consequences of not undergoing surgery for hip fractures.

CONCLUSION:
Treatment of fragility hip fractures have to be managed by a multi-disciplinary team approach with involvement of relevant stakeholders to improve the outcomes and rehabilitate the patient. There is still a big care gap within as illustrated by our study and this has to be addressed. Medical education on osteoporosis should be emphasized to increase the utilization of osteoporosis medications post discharge for patient with fragility hip fractures.

REFERENCES:
1. Yeap SS, Thambiah SC, Samsudin IN, et al. Different reference ranges affect the prevalence of osteoporosis and osteopenia in an urban adult Malaysian population. Osteoporos Sarcopenia. 2020;6(4):168-172.
2. Chan CY, Subramaniam S, Mohamed N, et al. Determinants of Bone Health Status in a Multi-Ethnic Population in Klang Valley, Malaysia. Int J Environ Res Public Health. 2020;17(2):384.

"PATH TO MOBILITY": HIP FRACTURE REHABILITATION JOURNEY OF A GERIATRIC PATIENT IN A DISTRICT HOSPITAL

[1]See HJ; [1]Wan Mohammad Akbar, Sharifah Hanisah;[1,2]Yew CK, [1,2]Sahadeevan, Yasothai
1. *Department of Rehabilitation Medicine, Hospital Sultanah Bahiyah, Alor Setar, Kedah, Malaysia*
2. *Geriatric-Rehabilitation Unit, Hospital Kuala Nerang, Kuala Nerang, Kedah, Malaysia*

INTRODUCTION:
As the incidence of geriatric hip fractures continues to rise with the global population age, Malaysia is projected to have the highest increase in total number of hip fractures in Asia by 2050[1].

This report explores the recovery of a non-simultaneous bilateral hip fracture in a geriatric patient who underwent inpatient rehabilitation in a district hospital.

CASE REPORT:
An 85 years-old lady with a history of left inter-trochanteric femur fracture 2 years ago presented to the emergency department with a complaint of right hip pain. The pain started after the patient accidentally slipped and fell while doing household chores. X-rays of her bilateral hip showed a right intertrochanteric fracture and left proximal femoral nail with united fracture. Her other comorbidities include diabetes, hypertension, history of cerebellar stroke in 2022, and Meniere's disease.

She was seen by the orthopedic team and a right short proximal femoral nail was done on day 5 post-trauma. Intraoperatively, she was noted to have osteoporotic bone. No medical complications pre- or post-operatively were noted and intravenous Romosozumab was given as treatment for osteoporosis.
On day 3 post-surgery, she was referred to the geriatric rehabilitation team for post-operative rehabilitation. She was transferred to the geriatric rehabilitation ward in Hospital Kuala Nerang for inpatient rehabilitation.

RESULTS:
She received 8 days of therapy in the ward. Her modified Barthel index improved from 50 (severe dependency) to 71(moderate dependency). She was able to ambulate with walking frame indoors without assistance upon discharge.

DISCUSSIONS:
This patient was mobilized as soon as medically able, in accordance with the NICE guidelines' quality standards to start rehabilitation the day after surgery[2]. Patients undergoing comprehensive geriatric-rehabilitation inpatient care demonstrated better quality of life and mobility up to a year later[3], with gait and balance recovery most rapid in the first 6 months[4]. Thus, it is imperative that this period is maximally used to rehabilitate patients to pre-fracture mobility status.

CONCLUSION
Early rehabilitation interventions post-surgery in a dedicated geriatric rehabilitation ward is imperative to prevent functional decline and immobility complications secondary to hip fractures in the geriatric population.

REFERENCES:
1. Cheung, C.-L., Ang, S. B., Chadha, M., Chow, E. S.-L., Chung, Y.-S., Hew, F. L., Jaisamrarn, U., Ng, H., Takeuchi, Y., Wu, C.-H., Xia, W., Yu, J., & Fujiwara, S. (2018). An updated hip fracture projection in Asia: The Asian Federation of Osteoporosis Societies Study. Osteoporosis and Sarcopenia, 4(1), 16–21. https://doi.org/10.1016/j.afos.2018.03.003
2. National Institute for Health and Care Excellence. (2016). Hip fracture in adults [QS16]. www.nice.org.uk/guidance/qs16/chapter/quality-statement-6-rehabilitation-after-surgery
3. Prestmo, A., Hagen, G., Sletvold, O., Helbostad, J. L., Thingstad, P., Taraldsen, K., Lydersen, S., Halsteinli, V., Saltnes, T., Lamb, S. E., Johnsen, L. G., & Saltvedt, I. (2015). Comprehensive geriatric care for patients with hip fractures: A prospective, randomised, controlled trial. The Lancet, 385(9978), 1623–1633. doi: 10.1016/s0140-6736(14)62409-0
4. Magaziner, J., Hawkes, W., Hebel, J. R., Zimmerman, S. I., Fox, K. M., Dolan, M., Felsenthal, G., & Kenzora, J. (2000). Recovery from hip fracture in eight areas of function. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 55(9). https://doi.org/10.1093/gerona/55.9.m498

CLINICAL OUTCOMES OF ORTHOGERIATRIC FEMORAL NECK FRACTURE PATIENTS WHO UNDERGO HIP REPLACEMENT VIA ANTEROLATERAL HARDINGE APPROACH WITHOUT POST-OPERATIVE HIP DISLOCATION PRECAUTIONS IN THE PHILIPPINE GENERAL HOSPITAL

[1]Dychioco, Jose Mari S; [1]Tabu, Irewin A
1. *Department of Orthopedics, Philippine General Hospital, University of the Philippines Manila, Taft Avenue, Ermita, Manila, Philippines*

INTRODUCTION:
Fragility fractures of the hip are a major health concern among the elderly and require well-coordinated surgical intervention and peri-operative rehabilitation to achieve pre-injury mobility and function. Immediate post-operative rehabilitation has been shown to be associated with a lower risk of mortality for fragility fracture patients. However, for Femoral Neck Fragility Fracture patients treated with arthroplasty, rehabilitation protocols may need to be cautious with dislocation precautions for the patient. Hip dislocation precautions can be a major lifestyle modification for post-operative patients and can result in a slower return to activities of daily living. Removing dislocation precautions may allow physical therapists to conduct early unrestricted rehabilitation.

MATERIALS & METHODS:
This is a retrospective cohort study of Orthogeriatric Femoral Neck Fracture Patients who are treated with Hip Arthroplasty via Anterolateral Approach and are allowed early rehabilitation without dislocation precautions in the Philippine General Hospital (PGH) admitted from January to December 2023. Outcome measures utilized include the patient's return to ambulation, pain scores, Modified Harris Hip Score (MHHS) and patient satisfaction scores using the EuroQol-5D (EQ-5D-5L).

RESULTS:
For 2023, twelve (12) femoral neck fragility fracture patients were treated with hip arthroplasty in PGH: four with a total hip arthroplasty and eight with a partial hip arthroplasty. No dislocations were reported. The mean mHSS on admission was 4.1, with improvement to 15.9 after surgery and prior to discharge and 59.2 on follow-up at 3 months post-op. EQ-5D-5L VAS Scores improved from a mean of 46 on admission at injury to a mean of 56 prior to discharge and 78 at 3 months post- op. The EQ-5D-5L Dimensions on Mobility, Self-care, Usual Activities and Pain Discomfort showed marked improvement from admission to 3 months postop.

DISCUSSIONS:
The results of the study present improvement and recovery of patients at 3 months post-op without any risks of dislocation despite abolishing dislocation precautions. These results are consistent with published literature which utilize the anterolateral approach in conjunction with early unrestricted rehabilitation allows early return to activities and good patient satisfaction scores.

CONCLUSION:
The study supports removing dislocation precautions in femoral neck fragility fracture patients to allow early unrestricted rehabilitation. However, a larger population size and use of multi-center studies could provide more power to this conclusion.

REFERENCES:
1. Barnsley, L., Barnsley, L., & Page, R. (2015). Are Hip Precautions Necessary Post Total Hip Arthroplasty? A Systematic Review. Geriatric Orthopedic Surgery & Rehabilitation, 230-235.
2. Jobory, A., Rolfson, O., Akesson, K., Arvidsson, C., Nilsson, I., & Rogmark, C. (2019). Hip precautions not meaningful after hemiarthroplasty due to hip fracture. Cluster-randomized study of 394 patients operated with direct anterolateral approach . Injury, 1318-1323. Lightfoot, C., Coole, C., Sehat, K., & Drummond, A. (2020). Hip precautions after total hip replacement and their discontinuation from practice: patient perceptions and experiences. Disability and Rehabilitation.
3. Pena, M. A., Tabu, I., & Bing-Agsaoay, D. D. (2022). Functional Outcomes among Geriatric Fragility Hip Fracture Patients in a Developing Country: A Comparative Study between Complete and Incomplete Post-operative Rehabilitation. Acta Medica Philipinna, 133-142.

BEYOND THE BREAK: LIVED EXPERIENCES OF OLDER ADULTS WITH FRAGILITY FRACTURES

[1,2]Syed Husli, Syarifah Nora; [3]Jamil, Noor Aini; [4]Mokhtar, Sabarul Afian; [4]Juzaily Fekry, Leong; [5]Elizabeth Gar Mit, Chong; [1]Singh, Devinder Kaur Ajit

1. *Center for Healthy Ageing and Wellness & Physiotherapy Program, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz 50300 Kuala Lumpur, Malaysia.*
2. *Department of Physiotherapy, Hospital Kuala Lumpur, Malaysia.*
3. *Dietetics Program, Centre for Community Health Studies (ReaCH), Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz 50300 Kuala Lumpur, Malaysia.*
4. *Department of Orthopedics, UKM Medical Centre, Jalan Yaacob Latiff, Bandar Tun Razak, Cheras, 56000 KL, Malaysia.*
5. *Department of General Medicine, Hospital Kuala Lumpur, Malaysia*

INTRODUCTION:
The occurrence of a fragility fracture can have adverse consequences on the daily lives of older adults. However, there is a lack of insight into this matter from older adults who have experienced osteoporotic fragility fractures. The objective of this study to explore lived experiences of older adults with osteoporotic fragility fracture.

MATERIALS & METHODS:
Two focus group discussions were conducted with eight older adults (mean age:72.63 years; SD:4.72) diagnosed with osteoporosis who had experienced falls and fragility fractures using purposive sampling. Semi-structured interview guides were utilized, focusing on themes related to pain, fall and lived experiences. The data was recorded and analysed verbatim using thematic analysis techniques.

RESULTS AND DISCUSSION:
Four main themes emerged from the study: fall characteristics, pain experience, impact on activities of daily living, and coping strategies. The results indicated that the majority of participants experienced falls at home while carrying out daily activities, resulting in fractures, with trips or slips being the main causes. Participants reported experiencing daily pain, primarily in the lower limbs and lower back, with Numerical Rating Scores ranging from 2 to 6. The impact of falls, fragility fractures, and pain included physical limitations, fear of falling, reliance on walking aids for mobility, and reduced quality of life. Coping strategies employed by participants included being more vigilant to prevent further injuries, engaging in exercise and physical activities such as gardening and walking, as well as restricting certain daily activities.

CONCLUSION:
In conclusion, the study revealed significant insights into fall characteristics, pain experiences, coping strategies, and the impact on daily activities among older adults with osteoporotic fragility fractures, indicating a complex interplay between these factors. Moving forward, healthcare providers and policymakers can utilize these findings to develop tailored interventions aimed at preventing falls and recurrent fragility fractures, managing pain, as well as improving the overall quality of life for this population.

REFERENCES:
1. Gheorghita A., Webster,F., Thielke, S. et al., Long term experiences of pain after a fragility fracture 2018; Osteoporos Int 29, 1093-1104.
2. Cortet, Bernard, et al., Fragility fractures in France: epidemiology, characteristics and quality of life, Archives of osteoporosis 2020; 1-10.
3. Giangregorio, L., et al., Osteoporosis knowledge among individuals with recent fragility fracture. Orthopaedic Nursing 2010; 99-107.

FLS EFFECTIVENESS IN PATIENTS WITH HIP FRACTURE SURGERY: HOME BASED INTERACTIVE TELECOMMUNICATION

[1]Kang Ji Young; [1]Beom Jaewon; [1]Lim, Jae-Young;
1. *Department of Rehabilitation Medicine, Seoul National University Bundang Hospital, Gumi-ro 173beon-gil, Seongnam-si, Republic of Korea*

INTRODUCTION:
Rehabilitation and management following hip fracture surgery play a critical role in promoting patient recovery and restoring functional abilities. However, with the majority of patients spending their recovery period at home, self-management can pose challenges, potentially increasing the risk of functional decline and complications. In response, our objective is to offer Fracture Liaison Service (FLS) to patients discharged home after hip fracture surgery and conduct periodic monitoring using home-based interactive telecommunication to evaluate effectiveness.

MATERIALS & METHODS:
Twenty-two patients were evaluated and treated under FLS led by the coordinator. The FLS includes patients' identification, investigation, education, coordinating, and monitoring. Education of post-operative physical activity, fall prevention, osteoporosis prevention, or nutrition were scheduled by corresponding specialist. Functional ambulation category (FAC) was assessed at admission, discharge, and follow-up. Repeated-Measure Analysis of Variance (RM-ANOVA) was conducted to study a program effect and the effect of education completion.

RESULTS:
Twenty patients completed follow-up. Average FAC at admission, discharge, follow-up was 0.93, 2.02, and 2.85, respectively. RM-ANOVA reported a significant time effect of telecommunication program on functional ambulation levels ($F(1, 18) = 43.624$ ($p < 0.0001$). The interaction effect between time and group was insignificant ($F(1, 18) = 0.036$ ($p = 0.852$). The group effect was insignificant ($F(1, 18) = 2.885$ ($p = 0.107$). However, we found a trend that higher FAC scores in patients with complete education than that of patients with incomplete education (Figure 1).

DISCUSSIONS & CONCLUSION:
The FLS service demonstrates improvement in patients' perception of physical activity leading to enhanced Functional Ambulation Category (FAC). Continuous home-based interactive telecommunication by the FLS coordinator may contribute to this improvement.

REFERENCES:
The effectiveness of fracture liaison services in patients with hip fractures: A systematic review and meta-analysis of randomized controlled trials. Heliyon. 2023 Oct; 9(10): e20838.

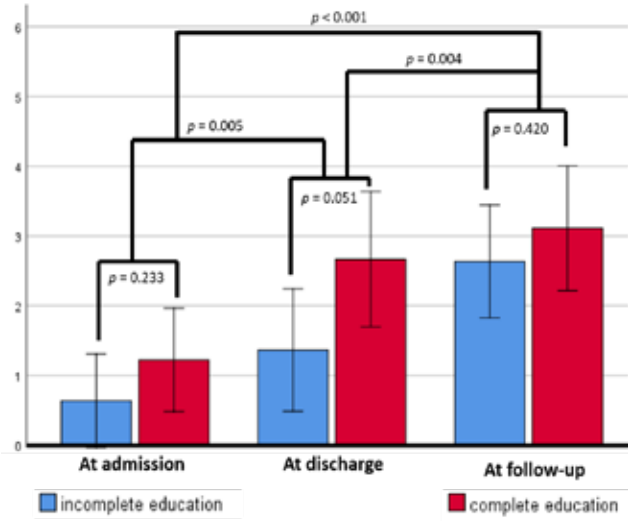


Figure 1: Summary of follow-up

EVALUATING BARRIERS OF PRESCRIBING BONE PROTECTION MEDICATIONS FOLLOWING HIP FRACTURE IN NORTH SHORE HOSPITAL

[1]Seow, MY; [2]Alix, E; [2]Musa, H
1. *Orthopaedic Department, North Shore Hospital, Takapuna, Auckland, New Zealand*
2. *Fracture Liaison Service, North Shore Hospital, Takapuna, Auckland, New Zealand*

INTRODUCTION:
The purpose of this study is to evaluate the reasons of bone protection not commenced following hip fracture prior to discharge.

MATERIALS & METHODS:
All patients above the age of 50 with fragility hip fracture operated in North Shore hospital (NSH) from 1 June 2022 till 30 June 2023 were included, pathological fractures and atypical femoral fractures were excluded from this study. Demographics, bone protection on admission, bone protection on discharge and reasons bone protection not commenced at discharge were collected from the medical records.

RESULTS:
489 patients with fragility hip fractures were treated surgically in North Shore Hospital between June 2022 and June 2023, with an average age of 83.2 years old. 20% of patients received bone protection before hip fractures and one-third were taking vitamin D supplements.

329 patients (67%) received bone protection on discharge. 111 patients were given vitamin D supplement and 49 patients did not receive bone protection or vitamin D supplement on discharge. Reasons of patients did not receive bone protection on discharge were 77 (48%) were not indicated following review by orthogeriatricians due to advanced frailty or comorbidities. 35 (22%) patients had renal impairment, 17 (10%) patients declined treatment despite education, 15 (9%) patients were awaiting bone density result, 8 (5%) patients were overlooked and given no treatment, 7 (4%) of patients were out of area (discharged to their domicile hospital for ongoing care) and 1 patient with previous radiotherapy and surgical treatment to jaw did not receive bisphosphonate due to concern of osteonecrosis of the jaw.

DISCUSSIONS:
Our study shows that 67% of hip fracture patients left NSH on bone protection as compared to 35% national average. The 8 patients (2%) who were overlooked were then assessed by the Fracture Liaison Service following discharge. The remaining 31% of patients presented with unmodifiable barriers for commencement of bone protection.

CONCLUSION:
Proactive orthogeriatric and Fracture Liaison Services are vital to ensure hip fracture patients receive bone protection medication prior to discharge.

REFERENCES:
1. Kim D, Seow MY., et al. Expansion and consolidation of fracture liaison service in New Zealand public healthcare setting- Waitemata District Health Board Experience. NZMJ 2022 10:135 (1556):73-80
2. Gill CE, Mitchell PJ, Seow MY., et al. Experience of a systemic approach to care and prevention of fragility fractures in New Zealand. Arch Osteoporosis. 2022 Aug 2;17(1):108

REGIONAL DIFFERENCES IN RISK OF SECONDARY FRACTURES IN PATIENTS FOLLOWING HIP FRACTURE: COX'S PROPORTIONAL HAZARD MODEL

[1]Yonghan, Cha; [2]Seung Hoon Kim

1. *Department of Orthopedic Surgery, Daejeon Eulji Medical Center, Eulji University School of Medicine, Daejeon, Korea.*
2. *Department of Preventive Medicine, Eulji University School of Medicine, Daejeon, Korea*

INTRODUCTION:
Understanding the regional health disparity among patients with hip fractures will guide policy implementations to accommodate vulnerable regions. Favorable policies will promote better preventive and treatment options and access to osteoporosis medications to reduce the incidence of secondary fractures in patients with hip fracture.

MATERIALS & METHODS:
National Health Insurance Service National Sample Cohort (2004–2019) was used to analyze the data, resulting a total of 6,213 patients. Secondary fracture which includes hip, wrist, humerus, spine, ankle, pelvis fractures were seen among patients with 6 months after hip fracture. The Position vAlue for Relative Composite index was used to identify medically vulnerable regions in South Korea. Cox proportional hazards models were used for statistical analysis.

RESULTS:
Among the 6,213 patients who experienced a hip fracture (1949 males, 4264 females), 981 lived in medically vulnerable areas, and 5232 lived in non-vulnerable areas. Patients residing in medically vulnerable areas had a higher risk of secondary fractures than those residing in medically non-vulnerable areas (HR: 1.24; 95% CI: 1.05–1.47; P=0.0099). In patients with hip fracture patients residing in medically vulnerable areas, factors that increased their risk of secondary fractures included being women (HR: 1.30; 95% CI: 1.08–1.57; P=0.005), age ≥71 years (HR: 1.23; 95% CI: 1.01–1.44; P=0.03), and not receiving osteoporosis medication (HR: 1.47; 95% CI: 1.14–1.89; P=0.003). Ten years after hip fracture surgery, the risk of secondary fracture more than tripled in the vulnerable areas compared to non vulnerable areas (HR: 3.51; 95% CI: 1.86–6.61; P<0.001). Among secondary fractures, the risk of spine fracture in vulnerable areas was more pronounced (HR:1.43; 95% CI: 1.08–1.89; P=0.01).

CONCLUSION:
Among patients who have experienced a hip fracture, those residing in medically vulnerable areas have an increased risk of secondary fractures compared to patients residing in medically non-vulnerable areas. The most prominent increase in risk is observed in spine fractures. In hip fracture patients residing in medically vulnerable areas, factors that increased the risk of secondary fractures included being women, age 50 or above, and not receiving osteoporosis medication. To prevent secondary fractures in hip fracture patients who face difficulties accessing medical institutions, it is essential not only to expand medical facilities in medically underserved areas to ensure the availability of appropriate healthcare services, but also to implement changes in healthcare policies, such as providing transportation options and offering home healthcare services.

REFERENCES:
1. Si L, Winzenberg TM, Palmer AJ. A systematic review of models used in cost-effectiveness analyses of preventing osteoporotic fractures. Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA. 2014;25:51-60.
2. Solomon DH, Johnston SS, Boytsov NN, McMorrow D, Lane JM, Krohn KD. Osteoporosis medication use after hip fracture in U.S. patients between 2002 and 2011. J Bone Miner Res. 2014;29:1929-1937.
3. Solomon DH, Patrick AR, Schousboe J, Losina E. The potential economic benefits of improved postfracture care: a cost-effectiveness analysis of a fracture liaison service in the US health-care system. Journal of bone and mineral research: 2014;29:1667-1674.

PREDICTIVE FACTORS FOR ASSESSING PHYSICAL PERFORMANCE AND FUNCTIONAL RECOVERY FOLLOWING FRAGILITY HIP FRACTURE SURGERY: A PROSPECTIVE COHORT STUDY

[1]Luarngjindarat, Saniata; [2]Phruetthiphat, Ong-Art; [2]Pinijprapa, Panukorn
1. *Orthopedic Department, Rajavithi Hospital, Bangkok, Thailand*
2. *Orthopedic Department, Phramongkutklao Hospital, Bangkok, Thailand*

INTRODUCTION:
Fragility hip fracture is one of the burden issues which cause high mortality rates. In addition, combined with osteoporotic vertebral compression fracture (OVCF) would worsen functional outcomes. However, the incidence of combined fractures and their associated factors for short-term and mid-term functional outcomes are still unknown. We aim to identify the associated risk factors for functional outcomes in both short-term and mid-term in patient with fragility hip fracture, either isolated or combined with OVCF.

MATERIALS & METHODS:
A prospective study was performed in April 2021 to June 2022. The inclusion criteria were patients over 60 years old diagnosed with femoral neck fracture or intertrochanteric fracture treated with either bipolar hemiarthroplasty or Proximal Femoral Nail Antirotation fixation. All were enrolled in the Fracture Liaison Service care program. There were 25 isolated fragility hip fractures (30.9%) and 56 combined with OVCF (69.1%). Bone mineral density (BMD) was measured along with vertebral fracture assessment for evaluating the incidence of combined OVCF. Physical performance was evaluated at 6-week follow-up with Timed Up and Go test (TUG), and the functional outcome by Harris Hip Score (HHS) at 1 year. Other risk factors were analyzed by univariate and multivariate regression methods.

RESULTS:
Hip BMD and lumbar T-score were significantly lower in the combined group (p=0.03 and p=0.033). Female, advanced age (> 80 years), and intertrochanteric fracture were associated with poorer physical performance (P=0.001, P=0.008, and P=0.04). Furthermore, advanced age and hospital stay exceeding 7 days were prognostic risk factors for poor TUG [odd ratio (OR)=8.65, P=0.003 and OR=4.03, P=0.033]. Similarly, female, advanced age, and combined OVCF were associated with significantly lower 1-year HHS (P=0.047, P=0.003, and P=0.039).

CONCLUSION:
Our study identified various factors predicting poor short-term physical performance and mid-term functional outcome in both isolated and combined fragility hip fractures with OVCF. These prognostic factors necessitate tailoring post-operative care, including focused physical therapy, appropriate osteoporotic treatment, and comprehensive fall prevention strategies, to optimize functional outcomes.

Figure 1 Compare outcomes between groups

	Isolated hip fracture (n=25)	Combined hip fracture with OVCF (n=56)	p-value
6-week Time up and go test (sec), Median (Min , Max)	**20.20 (9.30 , 65.00)**	**34.05 (11.70 , 82.90)**	**0.042‡**
1-year Harris hip score, Mean ± SD	**87.36 ± 7.06**	**82.02 ± 8.18**	**0.006†**
Other outcomes			
Operative time (hours), Median (Min , Max)	1.00 (1.00 , 2.00)	1.50 (1.00 , 2.00)	0.693‡
Intraoperative blood loss (ml), Median (Min , Max)	100.00 (50.00 , 200.00)	100.00 (50.00 , 450.00)	0.164‡
Length of hospital stay (days), Median (Min , Max)	**7.00 (5.00 , 30.00)**	**11.00 (4.00 , 42.00)**	**0.022‡**

†Independent t-test, ‡Mann-Whitney U test
Significant if p<0.05

Figure 2 Univariable and Multivariable analysis for 1 year Harris Hip Score

	Unadjusted β (95%CI)	p-value	Adjusted β (95%CI)	p-value
Combined hip fracture with OVCF	**-5.34 (-9.10 , -1.58)**	**0.006**	**-3.98 (-7.75 , -0.21)**	**0.039**
age ≥ 80 years	**-5.55 (-8.98 , -2.12)**	**0.002**	**-5.07 (-8.35 , -1.79)**	**0.003**
Gender: Female	**-4.84 (-8.73 , -0.94)**	**0.016**	**-3.81 (-7.56 , -0.06)**	**0.047**
BMI	0.10 (-0.40 , 0.59)	0.700	0.08 (-0.37 , 0.53)	0.718
Intertrochanteric fracture	-2.00 (-5.81 , 1.81)	0.299	-1.20 (-4.74 , 2.34)	0.502
Length of hospital stay > 7 days	-3.84 (-7.69 , 0.01)	0.051	-1.28 (-5.06 , 2.49)	0.500

Multiple linear regression
Significant if p<0.05

PREVALENCE OF SARCOPENIA AND OUTCOME AFTER SURGERY IN ELDERLY HIP FRACTURE: A PROSPECTIVE COHORT STUDY

[1]Phruetthiphat, Ong-Art; [1] Ussadamongkol, Thitiwat; [1] Songpatanasilp,Thawee
1. Phramongkutklao Hospital, Bangkok, Thailand

INTRODUCTION:
Fragility hip fractures are associated with high mortality, loss of disability-adjusted life years, high resource use, and financial burden on the healthcare system [1,2,3]. Femoral neck fractures are common in the elderly and often occur with sarcopenia. However, data on the prevalence of sarcopenia in elderly Thai hip fracture patients is currently lacking. This study aims to identify the prevalence of sarcopenia in elderly femoral neck fracture patients and compare their functional outcomes, including post-surgical complications, with those of patients without sarcopenia.

MATERIALS & METHODS:
A prospective study collected data from 86 patients who sustained hip fractures between 2018 and 2019. The study included patients over 65 years old who had experienced either intertrochanteric fractures or femoral neck fractures (FNFs) due to low-energy trauma and underwent PFNA fixation or bipolar hemiarthroplasty (HA), respectively. All patients were followed up for at least one year after surgery. Sarcopenia was assessed in all participants using the AWGS 2019 criteria [4]. The primary outcome was the prevalence of sarcopenia in both groups of elderly hip fracture patients. Secondary outcomes included the one-year and two-year functional outcomes assessed by the Harris Hip Score (HHS), as well as medical and surgical complications between the groups.

RESULT AND DISCUSSION:
The prevalence of sarcopenia in hip fractures in elderly was 54.7% (males were 57.1% and females were 53.9%). The physical performance during short-term follow-up (within 6 months) was significantly lower in the sarcopenic group compared to the non-sarcopenic group (64.3% vs 35.7%). In addition, the functional outcome (Harris Hip Score) in the sarcopenic group was significantly lower than the non-sarcopenic group (82.6 vs 86.0, p=0.025). However, there was no difference in surgical complications, medical complications, and mortality rates between groups.

CONCLUSION:
Elderly hip fracture patients with sarcopenia are associated with lower physical activity levels within 6 months after surgery, and they may have a higher risk of falling. Additionally, the functional outcomes in the sarcopenic group were significantly lower compared to the non-sarcopenic group. Therefore, closer monitoring during the rehabilitation period is crucial for this vulnerable population.

Parameters	Sarcopenia	Non Sarcopenia	P-value
Age			
Mean ± SD	83.5 ± 8.6	78.9 ±10.3	**0.027**
Sex			0.792
Male	12 (57.1%)	9 (42.9%)	
Female	35(53.8%)	30 (46.2%)	
BMI	21.2 ± 3.7	24.6 ± 3.3	**<0.001**
ASA class			0.193*
I	2 (28.57)	5 (71.43)	
II	13 (48.15)	14 (51.85)	
III	32 (61.54)	20 (38.46)	
BMD: L1-L4 (g/cm2)	0.94±0.22	0.99±0.17	0.088
BMD : FN (g/cm2)	0.61±0.11	0.67±0.16	0.059

Table 1: Demography and Comorbidity between Sarcopenia and Non-sarcopenia patients

Prevalence of Sarcopenia and severe sarcopenia	N (%)
Sarcopenia	
No	39 (45.3%)
Sarcopenia	**6 (7.0%)**
Severe Sarcopenia	**41 (47.7%)**

Table 2: Prevalence of Sarcopenia and Severe sarcopenia in elderly hip fracture

	Sarcopenia	Non Sarcopenia	P-value
Surgical treatment			0.955
PFNA	19 (54.3%)	16 (45.7%)	
Bipolar HA	28 (54.9%)	23 (45.1%)	
Medical complications			0.505
No	43 (56.6%)	33 (43.4%)	
Yes	4 (44.4%)	5 (55.6%)	
Surgical complications			NA
No	46 (54.1%)	39 (45.9%)	
Yes	0 (0.00)	0 (0.00)	
HHS 1y	82.6 ± 5.5	86.0 ± 6.7	**0.025**
HHS 2y	84.7 ± 5.2	88.4 ± 8.0	0.131

Table 3: Surgical parameters, Functional outcome, and Complications between Sarcopenia and Non-sarcopenia groups

COMPARATIVE ASSESSMENT OF SHORT-TERM RECOVERY AND FUNCTIONAL OUTCOMES IN ELDERLY PATIENTS UNDERGOING PFNA FIXATION FOR INTERTROCHANTERIC FRACTURES WITH AND WITHOUT CKD: A PROSPECTIVE COHORT STUDY

[1]Paiboonrungroj, Suppakit; [1]Pinijprapa, Panukorn; [2]Satravaha, Yodhathai; [1]Phruetthiphat, Ong-Art
1. *Phramongkutklao Hospital, Bangkok, Thailand*
2. *Orthodontic Department, Mahidol University, Bangkok, Thailand*

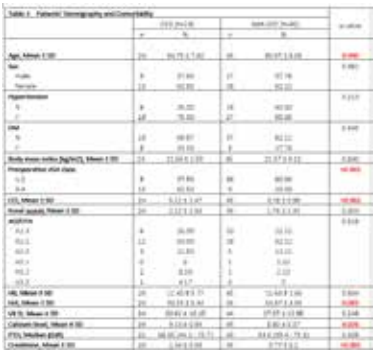
INTRODUCTION:
Osteoporotic hip fracture is becoming the world's major health issue as the majority of population ages [1-3]. Acute kidney injury and advanced CKD in the intertrochanteric fracture were significantly associated with increased one-year mortality [4]. In addition, Phruetthiphat et al [5] identified that an advanced stage CKD treated with PFNA fixation was associated with lower one-year functional outcome and sepsis was more common in CKD stage 5. However, lack of evidence demonstrated a comparison of short-term recovery between CKD and non-CKD in elderly patients with intertrochanteric fractures treated by surgical fixation.

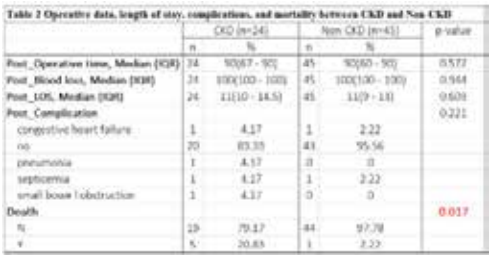
MATERIALS & METHODS:
Patients over 60 years old who sustained intertrochanteric fractures from low energy trauma underwent PFNA fixation were prospectively collected. All patients were categorized into 2 groups based on glomerular filtration rate (GFR): those patients without CKD [GFR≥60ml/min] and those patients with CKD [GFR<60 ml/min]. Patients' demography and comorbidities were reviewed in both groups. 3 months, 6 months, and one year time up and go test (TUG) were used to identify the short term recover and physical performance. 3, 6 months, and one-year functional outcome were evaluated by Harris hip score (HHS). Mortality rate was compared in both groups.

RESULTS:
This prospective study enrolled 69 participants, including 24 patients with CKD and 45 patients without CKD. There was no significant difference in length of stay, operative time and blood loss, fracture union, Koval scores, and HHS in both groups. However, the 6 months TUG in CKD group was significantly longer than the non-CKD group (p=0.035), and marginally statistical significance at 3 months (p=0.05) between groups. In addition, the mortality rate of CKD group was significantly higher than the non-CKD group (20.8% vs 2.2%, p=0.017).

DISCUSSION
Previous studies demonstrated that those patients with CKD stage 5 were associated with the highest mortality rate and lower functional outcome compared with non-CKD group. However, they defined this comparison retrospectively while our study defined this comparison prospectively reducing possible confounding factors. In addition, this study firstly demonstrated a comparison of physical performance by TUG in both groups.

CONCLUSION:
Those elderly patients with intertrochanteric fracture and CKD treated with PFNA were significantly associated with longer short-term recovery, and higher mortality rate. This vulnerable group requires more attention in rehabilitation program to optimize outcome. In addition, this information is valuable for counseling their families regarding the mortality rate.





	CKD (n=24)		Non CKD (n=45)		p-value
	n	%	n	%	
Post_Operative time, Median (IQR)	24	90(67 - 90)	45	90(60 - 90)	0.577
Post_Blood loss, Median (IQR)	24	100(100 - 100)	45	100(100 - 100)	0.944
Post_LOS, Median (IQR)	24	11(10 - 14.5)	45	11(9 - 13)	0.509
Post_Complication					0.221
congestive heart failure	1	4.17	1	2.22	
no	20	83.33	43	95.56	
pneumonia	1	4.17	0	0	
septicemia	1	4.17	1	2.22	
small bowel obstruction	1	4.17	0	0	
Death					0.017
N	19	79.17	44	97.78	
Y	5	20.83	1	2.22	

Table 3: TUG, HHS, and Koval score between CKD and Non-CKD

	CKD (n=24)		Non-CKD (n=45)		p-value
	n	%	n	%	
At 3 mo					
Xray union					0.803
N	7	36.84	17	38.64	
Y	12	63.16	27	61.36	
HHS	19	76.53 ± 5.49	44	76.75 ± 4.19	0.839
TUG	19	51.77 ± 20.03	44	42.21 ± 16.21	0.050
Koval score	19	5.95 ± 0.23	44	5.89 ± 0.62	0.679
At 6 mo					
Xray union					NA
N	0	0	0	0	
Y	18	100.00	99	100.00	
HHS	18	78.61 ± 3.86	99	79.92 ± 4.62	0.300
TUG	18	41.67 ± 15.15	99	32.88 ± 13.78	0.035
Koval score	18	5.56 ± 0.86	99	5.21 ± 1.3	0.303
Xray union					
At 12 mo					
Xray union					NA
N	0	0	0	0	
Y	13	100.00	92	100.00	
HHS	13	82.23 ± 4.38	92	83.5 ± 5.21	0.443
TUG	13	34.81 ± 14.1	92	28.08 ± 13.14	0.184
Koval score	13	5.38 ± 0.96	92	4.91 ± 1.42	0.273

EVALUATION OF THE WORLD FALLS GUIDELINES ALGORITHM IN PREDICTING FALLS WITHIN THE AGELESS-MELOR COHORT

[1]Soo Jin Sherry Lee, [1]Maw Pin Tan, [2]Sumaiyah Mat, [2]Devinder Kaur Ajit Singh, [1]Nor'Izzati Saedon, [1]Kiirtaara Aravindhan, [1]Xiang Jiang Xu, [3]Abu Bakar Abdul Majeed, [3]Kalavathy Ramasamy [1]Hui Min Khor

1. *Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia*
2. *Centre for Healthy Ageing and Wellness, University Kebangsaan Malaysia, Selangor, Malaysia*
3. *Faculty of Pharmacy, Universiti Teknologi MARA, Selangor, Malaysia*

INTRODUCTION:
The World Falls Guidelines (WFG) Task Force published a falls risk stratification algorithm in 2022. However, its adaptability is uncertain in low- and middle-income settings such as Malaysia due to different risk factors and limited resources. We evaluated the WFG risk stratification algorithm's predictive performance for falls among community-dwelling older adults in Malaysia.

MATERIALS & METHODS:
Data from the Malaysian Elders Longitudinal Research subset of the Transforming Cognitive Frailty into Later-Life Self-Sufficiency cohort study was utilized. From 2013-2015, participants aged ≥55 years were selected from the electoral rolls of three parliamentary constituencies in the Klang Valley. Risk categorization used baseline data. Falls prediction values were determined using follow-up data from wave 2 (2015-2016), wave 3 (2019) and wave 4 (2020-2022).

RESULTS:
Of 1,548 individuals recruited, 737 were interviewed at wave 2, 858 at wave 3, and 752 at wave 4. Falls were reported by 13.4%, 29.8% and 42.9% of the low-, intermediate- and high-risk groups at wave 2, 19.4%, 25.5% and 32.8% at wave 3, and 25.8%, 27.7% and 27.0% at wave 4, respectively. At wave 2, the algorithm generated a sensitivity of 51.3% (95%CI, 43.1-59.2) and specificity of 80.1% (95%CI, 76.6-83.2). At wave 3, sensitivity was 29.4% (95%CI, 23.1-36.6) and specificity was 81.6% (95%CI, 78.5-84.5). At wave 4, sensitivity was 26.0% (95%CI, 20.2-32.8) and specificity was 78.4% (95%CI, 74.7-81.8).

DISCUSSION:
Our findings are consistent with a study conducted by Hartley et al.[1], which used the same algorithm in an Irish study cohort. They produced similar values for sensitivity, specificity, and accuracy (40.2%, 81.5%, and 72.9%, respectively) at their two-year follow-up. Further, we found that the accuracy of the algorithm decreases gradually. These findings are aligned with previous evidence suggesting that falling among older adults is a dynamic process, affected by multiple risk factors that may be subject to change over time.

CONCLUSION:
The algorithm has high specificity and low sensitivity in predicting falls, with decreasing sensitivity over time. Therefore, regular reassessments should be made to identify individuals at risk of falling.

REFERENCES
Hartley P, Forsyth F, Rowbotham S, Briggs R, Kenny RA, Romero-Ortuno R. The use of the World Guidelines for Falls Prevention and Management's risk stratification algorithm in predicting falls in The Irish Longitudinal Study on Ageing (TILDA). Age Ageing. 2023;52(7).

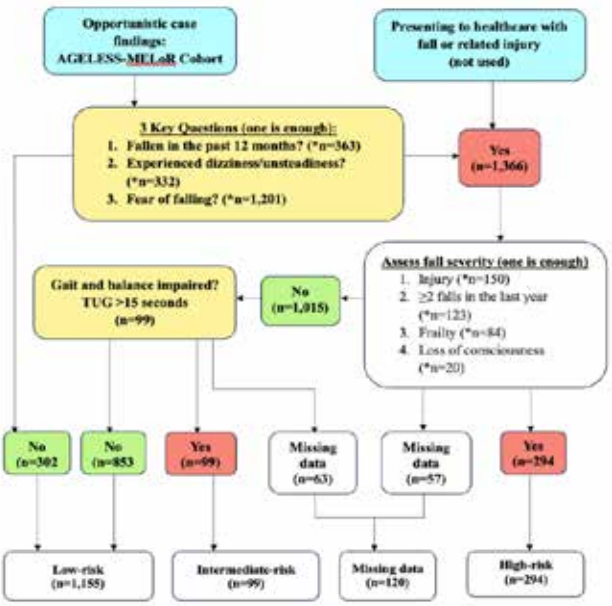


Figure 1: Risk stratification algorithm

RISK FACTORS ASSOCIATED WITH FALLS AND SUBSEQUENT HIP FRACTURES AMONG ELDERLY IN A DEVELOPING COUNTRY: A CASE CONTROL STUDY

[1]Zahid M; [1]Ahmad T; [2]Azam I; [2]Naseem M; [1]Noordin S; [2]Kadir M
1. *Department of Orthopedics, Aga Khan University Hospital, Stadium Road, Karachi, Pakistan*
2. *Department of Community Health Sciences, Institute, Stadium Road, Karachi, Pakistan*

INTRODUCTION:
Falls among the elderly present a significant public health concern, with potential consequences ranging from minor injuries to fatal fractures and brain trauma. The incidence of falls is increasing globally. This study aims to investigate risk factors for hip fractures in geriatric patients, considering the rising prevalence of falls and their associated injuries, particularly in low- and middle-income countries like Pakistan.

MATERIALS & METHODS:
This single-center case-control study was conducted in Karachi, Pakistan, involving geriatric patients aged 55 years and above. Cases comprised patients with hip fractures, while controls were individuals without hip fractures presenting at outpatient clinics. Predictor variables were assessed through logistic regression analysis.

RESULTS:
A total of 135 cases and 135 controls were included in the study. Analysis revealed significant associations between hip fractures and factors such as osteoporosis (OR=17.42), lack of previous falls within two years (OR=3.53), lack of use of calcium and vitamin D supplements (OR=3.52), and lack of use of fall protective devices at home (OR=2.5). Unexpectedly, higher education level showed a positive association with hip fractures. Mechanisms of falls, timing, and location were also examined, with indoor falls predominating, particularly in the early morning.

DISCUSSION:
The study underscores the importance of addressing osteoporosis and fall prevention strategies among the elderly population. Findings regarding education level challenge existing literature, suggesting the need for further investigation. Recommendations include targeted interventions to mitigate fall risks and improve bone health awareness, particularly in regions with limited geriatric care infrastructure.

CONCLUSION:
Osteoporosis emerged as a primary risk factor for hip fractures among geriatric patients, alongside age and education level.

REFERENCES:
Ahuja, K., S. Sen, and D. Dhanwal, Risk factors and epidemiological profile of hip fractures in Indian population: A case-control study. Osteoporosis and Sarcopenia, 2017. 3(3): p. 138-148.

Variable	Adjusted Odds ratio (95% CI)
Osteoporosis	
a. No	1
b. Yes	17.42 (5.44-55.74)
History of fall within last 2 years	
a. Yes	1
b. No	3.53 (1.70-7.35)
Age	
a. <70 years	1
b. >70 years	3.90 (1.98-7.70)
Toilet type used	
a. Water closet	1
b. Commode	3.35 (1.60-7.00)
Functional class (FC)	
a. FC I	1
b. FC II	2.72 (1.40-3.78)
c. FC III	12.39 (3.45-18.20)
Calcium & vitamin D supplements	
a. Yes	1
b. No	3.52 (1.68-7.39)
Fall protective devices at home	
a. No	1
b. Yes	0.40 (0.18-0.89)
Education level	
a. None	1
b. Up to grade 12	2.90 (1.16-7.20)
c. Bachelors and above	3.14 (1.10-9.00)

Figure 1: Final Logistic regression model for predictive variables

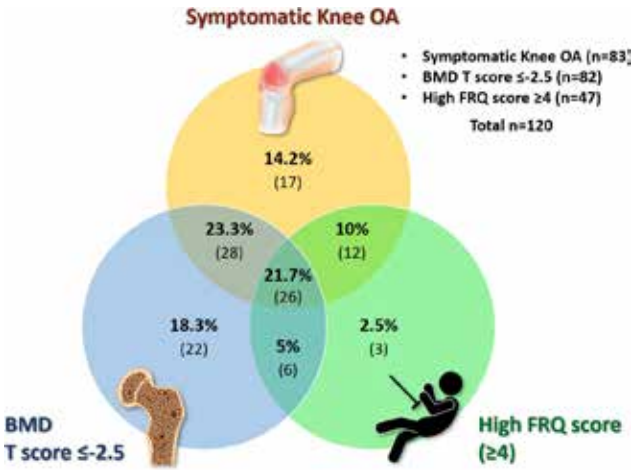
EVALUATING OSTEOARTHRITIS AND BONE MINERAL DENSITY IN ELDERLY HIP FRACTURE PATIENTS

[1]Mekariya K; [1]Adulkasem N; [1]Vanitcharoenkul E; [1]Chotiyarnwong P; [1]Unnanuntana A
1. *Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*

INTRODUCTION:
Osteoarthritis (OA) of the knee is a common degenerative condition that significantly impacts patient mobility and balance, increasing the risk of falls and fragility fractures. This study aimed to establish the specific prevalence of symptomatic knee osteoarthritis (SKOA) in patients with fragility hip fractures (FHF) and its association with bone mineral density (BMD) and fall risk.

MATERIALS & METHODS:
A cross-sectional analysis was performed between January 2020 and May 2023. Diagnosis of knee OA was followed by the American College of Rheumatology criteria, with severity assessed via the Kellgren–Lawrence (KL) classification. SKOA was defined as FHF patients exhibiting knee OA of KL grade II or higher with substantial knee pain (visual analog scale pain score of >2/10 for more than 2 months) or gross instability. BMD at the lumbar spine and contralateral hip was measured using dual-energy X-ray absorptiometry scans. Fall risks were quantified using a self-rated fall risk questionnaire (FRQ).

RESULTS:
Among 162 FHF patients (mean age 79.9±8.1 years, 80.2% female), 66% had SKOA, correlating with increased multiple fall rates (p=0.013) and fall risk (p=0.020). Notably, 26.5% of SKOA patients were in end-stage knee OA (KL IV). The proportions of FHF patients with complete BMD data who were affected by SKOA, low BMD on the contralateral hip and spine, and/or a high risk of falls were shown in Fig.1.



DISCUSSIONS:
We found a significantly high prevalence of SKOA. Nearly Half (45%) of the patients had concurrent SKOA and low BMD, while approximately 20% presented with all three risks for subsequent fracture (SKOA, low BMD, and high fall risk [FRQ≥ 4])

CONCLUSION:
This study highlights a significant occurrence of both SKOA and low BMD among FHF patients. Comprehensive evaluation and treatment are crucial. This includes considering surgical intervention for knee OA, particularly for those with osteoporosis at the spine or contralateral hip who are at the highest risk of subsequent fractures.

METABOLIC AND BONE MINERAL DENSITY EVALUATION OF ELDERLY PATIENTS WITH FRAGILITY HIP FRACTURES

[1]Young, Julia Angeli; [1,2]Sandoval, Mark Anthony

1. *Division of Endocrinology, Diabetes and Metabolism, Department of Medicine, College of Medicine ad Philippine General Hospital*
2. *Department of Physiology, College of Medicine University of the Philippines Manila, Taft Avenue, Manila Philippines*

INTRODUCTION:
Part of the activities of a fracture liaison service is assessing bone health and identifying any secondary causes of osteoporosis.

OBJECTIVE:
To characterize the metabolic and bone mineral density profile of elderly patients with fragility hip fractures seen by the Orthogeriatric – Fracture Liaison Service of the University of the Philippines - Philippine General Hospital.

MATERIALS & METHODS:
Cross-sectional, retrospective, chart review; included all elderly patients with fragility hip fractures admitted from October 2017 to April 2023.

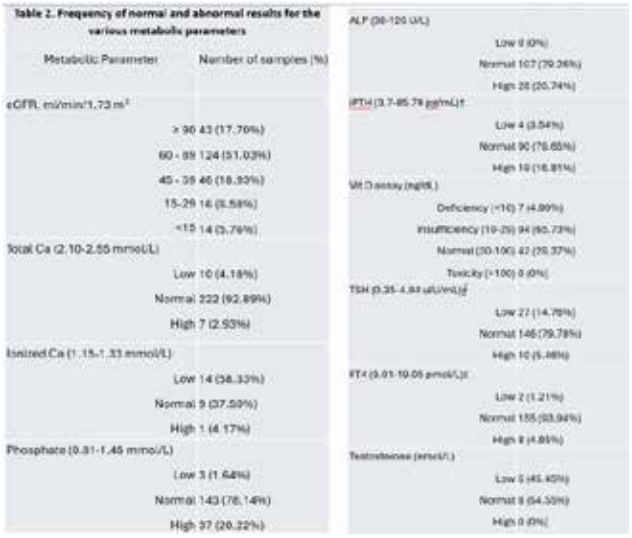
RESULTS AND DISCUSSION:
244 patients were included. 84.84% were women, with mean age of 74.68 years. All biochemical parameters showed mean or median values within the normal reference range except for 25-OH vitamin D. The median 25-OH vitamin D level is low at 23.6 ng/dL. Most patients had low vitamin D level (65.73% insufficiency and 3.54% deficiency, respectively).

Among the 155 patients who underwent DXA scan, 88.38% were osteoporotic, 10.97% were osteopenic and only 0.65% had normal bone density. All T-score means were in the osteoporotic range. 100 of the osteoporotic patients (72.99%) had at least one Z-score of less than -2.0.

CONCLUSION:
Our results suggest that low vitamin D status may be contributing to the fracture risk of these patients. Correction of this metabolic abnormality could have prevented the fracture had this been identified earlier, or if addressed prospectively, it may reduce subsequent fracture risk. Majority of patients had at least one Z-score lower than -2.0, suggesting a secondary contributory cause. Among the metabolic parameters, this secondary cause could be vitamin D insufficiency/deficiency.

Table 1. Mean or Median values of the metabolic parameters tested among elderly patients with fragility hip fractures.

Metabolic parameter, unit	No. of patients evaluated	Mean ± SD; or Median (IQR)
eGFR, mL/min/1.73m²	243	74.47 (52.68 to 86.96)
Total calcium, mmol/L	239	2.31 ± 0.14
Ionized calcium, mmol/L	24	1.13 ± 0.18
Phosphorus, mmol/L	183	1.3 ± 0.41
Alkaline phosphatase, IU/L	135	95 (73 to 117)
Intact parathyroid hormone, pg/mL	113	47.78 (25.27 to 77.7)
25-OH Vitamin D, ng/dL	143	23.6 (17.25 to 31.81)
Thyroid stimulating hormone, µIU/mL	183	1.19 (0.64 to 1.87)
Free T4, pmol/L	164	15.24 ± 3.09
Testosterone, nmol/L	11	10.06 (5.58 to 13.73)



OPTIMISING SECONDARY PREVENTION OF OSTEOPOROTIC FRACTURE: A PROJECT USING IV ZOLEDRONATE AS FIRST-LINE TREATMENT

[1]J.Ng, [2]TY.Ong
1. *Orthogeriatric Department, Royal Surrey County Hospital, United Kingdom*

INTRODUCTION:
Hip fractures account for approximately 20% of the 549,000 new fragility fractures reported annually in the United Kingdom (UK) (1). According to the National Hip Fracture Database (NHFD), the Royal Surrey County Hospital Trust (RSCH) is 24% below the national average in providing suitable bone strengthening treatment and follow-up care (2). We aim to promote the use of Intravenous (IV) Zoledronate as first-line bone protection post-hip fracture in accordance with the National Osteoporosis Guideline Group (NOGG 2021) (3).

MATERIALS & METHODS:
Retrospective analysis of data from NHFD for Orthogeriatric patients admitted to RSCH in August (1st Audit) and October 2023 (Post-implementation re-audit). Focus analysis on demographics, bone health assessment and treatment. We reviewed Cerner notes (hospital computer system) to determine the clinical justification for not prescribing IV Zoledronate. All data processing was performed with Excel.

RESULTS:
In our study, we reviewed 22 male and 42 female patients, average age of 73 years and median of 84 years. The summarised data is presented in Figure 1. We identified a significant increase in prescribing IV Zoledronate as bone protection post-hip fracture (from 14% to 61%) at the end of our audit cycle.

DISCUSSIONS:
There is a 35% risk reduction in new clinical fracture and 28% lower mortality rates when IV Zoledronate is given post-hip fracture (3, 4). Nationally, developing a protocol for prescribing IV Zoledronate is challenging due to the complexity of the frail and elderly patients. In September 2023, we developed a local protocol for IV Zoledronate prescription shown in Figure 2 which we presented locally in our departmental teaching, accompanied with daily board and ward round discussions with the Multi-Disciplinary Team (MDT).

CONCLUSION:
We highlighted a significant increase in prescribing IV Zoledronate as secondary prevention post-hip fracture and the effectiveness of MDT education in improving clinical practice and patient satisfaction.

REFERENCES:
1. Borgström F, Karlsson L, Ortsäter G, Norton N, Halbout P, Cooper C, et al. Fragility fractures in Europe: burden, management and opportunities. Arch Osteoporos. 2020;15(1):59.
2. Database NHF. KPI 7 - Medication 2022
3. UK NOGG. Clinical guideline for the prevention and treatment of osteoporosis. United Kingdom NICE; 2021.
4. Lyles KW, Colón-Emeric CS, Magaziner JS, Adachi JD, Pieper CF, Mautalen C, et al. Zoledronic acid and clinical fractures and mortality after hip fracture. N Engl J Med. 2007;357(18):1799-809.

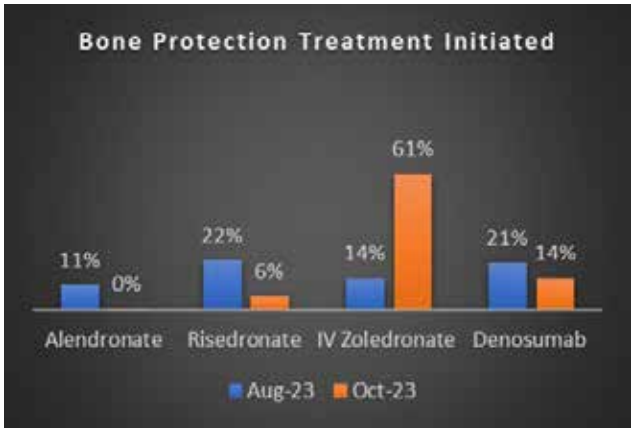


Figure 1: Bone Protection in August vs October 2023

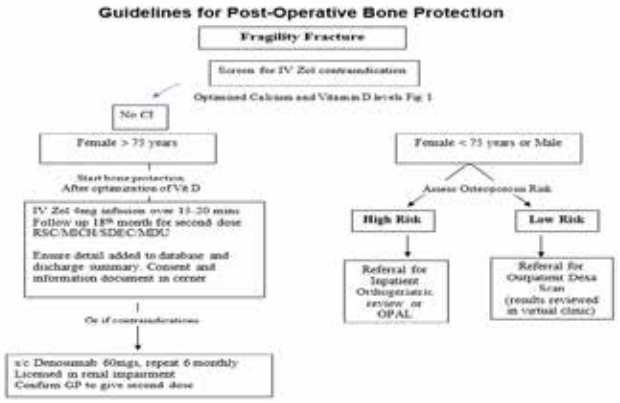


Figure 2: IV Zoledronate Prescribing Protocol

RELATIONSHIP BETWEEN AMERICAN SOCIETY OF ANESTHESIOLOGISTS (ASA) SCORE WITH COMPLICATIONS AND IN-PATIENT MORTALITY AFTER HIP FRACTURE IN THE ELDERLY

[1]Raj Saviana; [1]Tan SW; [1]Keng JN; [1]Alan Ch'ng; [1]Adilah, Hafizah; [1]Muhd Fikri; [1]Yap LC; [2]Mohd Harris; [3]Chin CJ

1. *Department of Geriatric, Hospital Seberang Jaya, Penang, Malaysia*
2. *Department of Orthopedic, Hospital Seberang Jaya, Malaysia*
3. *Clinical Research Centre, Hospital Seberang Jaya, Penang, Malaysia*

INTRODUCTION
Fragility hip fractures, a hallmark of osteoporosis in the elderly, are a major healthcare concern with high morbidity and mortality. The American Society of Anesthesiologists (ASA) score is used to evaluate a patient's fitness and comorbidities preoperatively. Study has shown ASA score seems to have direct correlation with multiple factors, such as the hospitalization days, the severity of the complications, and the total hospitalization costs.

MATERIALS & METHODS:
A retrospective study of all hip fracture patients aged 60 years old and above (n=125) admitted to Hospital Seberang Jaya from 1st November 2022 to 31st December 2023 was done. Data was collected from the medical report. Our objective was to examine the relationship of ASA score with complications and in-patient mortality following hip fracture.

RESULTS:
Of the 125 patients included in the study, 67.2%(n=88) were female and 28.2%(n=88) were male. The median ASA score was 2. There were statistically significant correlations between ASA score and two specific complications which were thromboembolism events (p = 0.014) and acute urinary retention (p = 0.025). Higher ASA score also reported strongly associated with in-patient mortality (p = 0.026) following hip fracture.

DISCUSSIONS:
Our study showed a substantial relationship between ASA score and post-fracture complications like thromboembolism, acute urine retention, and in-patient mortality. This highlights the value of ASA score in predicting adverse outcomes after fractures, aiding in risk evaluation and treatment decisions. Perioperative management of elderly hip fracture patients with a high ASA score needs comprehensive geriatric assessment and multidisciplinary approach to decrease postoperative morbidity and mortality.

The study's limited sample size, single-center methodology and retrospective data could limit its application and induce biases.

Post fracture complications	p-value
Thromboembolism	0.014*
Cardiac event	0.746
Pressure ulcer	0.405
Infection	0.392
Constipation	0.071
Acute urinary retention	0.025*
Delirium	0.536

*Fisher's Exact test

CONCLUSION:
In conclusion, our study highlights the role of ASA score in predicting hip fracture complications and mortality among the elderly patients.

EVALUATING THE ORTHOGERIATRIC FRACTURE LIAISON SERVICE OF A GOVERNMENT HOSPITAL IN THE PHILIPPINES BASED ON KEY PERFORMANCE INDICATORS

[1]Solito, JR; [1,2]Sandoval, MA; [3]Tabu, I

1. *Division of Endocrinology, Diabetes and Metabolism, Department of Medicine, Philippine General Hospital, Taft Avenue, Manila, Philippines*
2. *Department of Physiology, College of Medicine, University of the Philippines, Pedro Gil Street, Manila, Philippines*
3. *Department of Orthopedics, University of the Philippines – Philippine General Hospital, Taft Avenue, Manila, Philippines*

INTRODUCTION:
In the Philippines, the population is aging with osteoporosis and fracture cases rising. Elderly patients with fractures are inadequately treated leading to poorer quality of life and an increase in the risk of refracture. A Fracture Liaison Service (FLS) is an international thrust to address the gaps in management aiming to provide a systematic method in addressing secondary prevention of fragility fractures (1). The objective of this study is to determine the rates of compliance of an Orthogeriatric FLS at a government hospital to key performance indicators (KPIs) as based on Javaid et al (2) to assess quality of care.

MATERIALS & METHODS:
This is a retrospective, descriptive study with the primary outcome of rates of achieving specified KPIs determining success of an FLS program. A total of 209 patients were included in the study with all patients enrolled in the program from 2017 to 2022. Medical records were reviewed.

RESULTS:
The mean age of the patients is 74.3 years old. All the patients have hip fractures. Most patients (61.2%) had hypertension, while 29.7% had diabetes mellitus. Patients with CKD (eGFR < l60 ml/min/1.73 m^2), included 27.8% of patients, four were on dialysis. 13.4% of patients had an eGFR of <35 mL/min/1.73 m^2, which means bisphosphonate therapy cannot be given. Based on KPIs, the FLS program had a compliance rate of between 50 to 79%. Some indicators only had <50% compliance, with Indicator 10 being especially poor, only reaching above 50% in 2022.

DISCUSSIONS:
FLS programs can have differences in implementation and capabilities. To further improve, measurement of KPIs can help by being goalposts in which to base these improvements.

CONCLUSION:
KPIs when measured regularly can be helpful in tracking achievements and determining areas for improvement. This may lead to the goal of fracture prevention.

Variables	2017 N = 19 No. (%)	2018 N = 41 No. (%)	2019 N = 54 No. (%)	2020 N = 20 No. (%)	2021 N = 28 No. (%)	2022 N = 47 No. (%)
Outcomes						
Alive	18	40	53	17	25	42
Expired	1	1	1	3	3	5
Bone densitometry done	2 (11)	15(37)	26(48)	5(25)	10(36)	33(70)
Bisphosphonates Given	6(32)	26(63)	30(56)	11(58)	13(46)	32(68)
Zoledronic Acid	0(0)	0(0)	2(4)	0(0)	2(7)	18(39)
Alendronate	6(32)	26(63)	28(52)	11(58)	11(41)	14(30)
Compliance to Alendronate	N = 6	N = 26	N = 28	N = 11	N = 11	N = 14
1st Follow-up	6(100)	26(100)	26(92.9)	10(90)	8(72.7)	12(85.7)
52 weeks after sentinel fracture	4(66.7)	19(73.1)	17(60.7)	5(45.5)	8(72.7)	6(42.9)
On bisphosphonates 52 weeks after sentinel fracture	4 (22)	19 (47.5)	19(35.8)	5(29)	10(40)	24(53.3)
Falls Assessment done	11(65)	32(86)	39(78)	15(71)	16(67)	37(84)

Table 1: Study Variables

KPI	2017	2018	2019	2020	2021	2022
Indicator 5: Falls risk assessment	65%	86%	78%	71%	67%	84%
Indicator 6: Anti-osteoporosis medication (AOM) recommended as appropriate	32%	63%	56%	58%	46%	68%
Indicator 8: Commenced anti-osteoporosis medication (AOM) by 16 weeks post index fracture	32%	63%	56%	58%	46%	68%
Indicator 10: Patients taking anti-osteoporosis medication 52 weeks after the sentinel fracture	22%	47.5%	35.8%	29%	40%	53.3%

Table 3: Key Performance Indicators based on Javaid et al

SECONDARY FRACTURE PREVENTION AWARENESS AFTER HIP FRAGILITY FRACTURE: A SURVEY AMONG THE MEMBERS OF INDONESIAN ORTHOPAEDIC ASSOCIATION

[1]Soetjahjo, Bintang; [2]Siagian, Andreas M. H.; [2]Izaak, Zoelkarnain A.; [2]Putera, Husna D.; [2]Damayanthi, Essy D.; [2]Kesuwa, Wongso; [2]Septadi, Ridma I.; [2]Nurikhwan, Pandji W.; [3]Noor, Zairin;

1. *Department of Orthopaedics & Traumatology, Sebelas Maret University-dr. Moewardi Hospital, Solo, Indonesia*
2. *Department of Orthopaedics & Traumatology, Lambung Mangkurat University-Ulin General Hospital, Banjarmasin, Indonesia*
3. *Head of Research Center for Osteoporosis, Bone Health, and Fragility Fractures, Lambung Mangkurat University, Banjarmasin, Indonesia*

INTRODUCTION:
Hip Fragility Fracture referred to fracture of the proximal femur resulting from low energy trauma, and is a sign of underlying osteoporosis. It's still a global burden and the incidence is predicted to escalate in the upcoming decades. There is paucity of data regarding secondary fracture prevention after hip fragility fracture in Indonesia. This is the interim results of our currently conducted study, which purpose is to overcome the gaps in osteoporosis management, primarily the secondary fracture prevention.

MATERIALS & METHODS:
The survey was developed and modified after the Asia Pacific Osteoporosis and Fragility Fracture Society and the Asia Pacific Fragility Fracture Alliance's survey in 2022. It included questions primarily focused on secondary fracture prevention. It's conducted online among the Members of Indonesian Orthopaedic Association since March 1st 2024 and currently ongoing. Consent to participate anonymously and Consent for publication was obtained within survey responses.

RESULTS:
197 respondents participate in this survey. among them 69 are from Indonesian Hip and Knee Society. Several key findings are:

a. 50,3% never and 18,1% rarely evaluate Bone Mineral Density after finding Hip Fragility Fracture.
b. 51,8% never and 18,7% rarely evaluate serum 25(OH)D level after finding Hip Fragility Fracture.
c. Only 15,5% always and 29% usually give bisphosphonates for Hip Fragility Fracture patients.
d. Fracture Liaison Service are the lowest available service (3,1%) among respondent's workplaces.

DISCUSSIONS:
Most respondents who never or rarely evaluate Bone Mineral Density, serum 25(OH)D level, and gives bisphosphonates therapy are limited by costs or lack of facility in their workplace. Fracture Liaison Service is important and beneficial yet is the lowest available service among respondent's workplaces.

CONCLUSION:
Call to Action in Indonesia is desired to overcome gaps in secondary fracture prevention, as part of osteoporosis management in Indonesia. It includes national policy like distribution of supporting facilities and treatment cost's coverage policy.

REFERENCES:
International Osteoporosis Foundation. Fragility Fractures. 2024. https://www.osteoporosis.foundation/health-professionals/fragility-fractures. Accessed March 7th 2024.

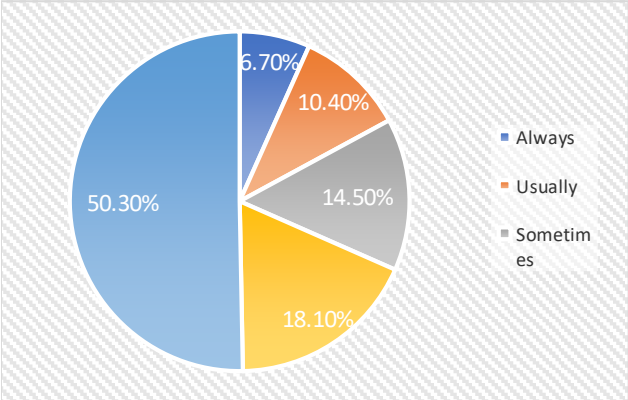


Figure 1: DXA Scan after Hip Fragility Fractures Finding

SECONDARY FRACTURE PREVENTION AWARENESS AFTER VERTEBRAL FRAGILITY FRACTURE: A SURVEY AMONG THE MEMBERS OF INDONESIAN ORTHOPAEDIC SPINE SOCIETY – PEDICLE CLUB INDONESIA

[1]Septadi, Ridma I.; [1]Iqbal, Muhammad; [1]Tobing, Sutan A. L,; [2]Sakti, Yudha Mathan; [3]Noor, Zairin;
1. *Department of Orthopaedics & Traumatology, Lambung Mangkurat University-Ulin General Hospital, Banjarmasin, Indonesia*
2. *Department of Orthopaedics & Traumatology, Gadjah Mada University-dr. Sardjito General Hospital, Yogyakarta, Indonesia*
3. *Head of Research Center for Osteoporosis, Bone Health, and Fragility Fractures, Lambung Mangkurat University, Banjarmasin, Indonesia*

INTRODUCTION:
Vertebral Fragility Fracture referred to fracture of the vertebral column resulting from low energy trauma, and is a sign of underlying osteoporosis. It significantly affects the quality of life and daily living activity. There is currently lack of data regarding secondary fracture prevention after vertebral fragility fracture in Indonesia. This is the interim results of our currently conducted study. The objective is to overcome the gaps in secondary fracture prevention.

MATERIALS & METHODS:
The survey was developed and modified after the Asia Pacific Osteoporosis and Fragility Fracture Society and the Asia Pacific Fragility Fracture Alliance's survey in 2022. It included questions primarily focused on secondary fracture prevention after vertebral fragility fracture. It's conducted online since March 1st 2024 among the Members of Indonesian Orthopaedic Spine Society – Pedicle Club Indonesia (IOSS-PCI) which is a part of Indonesian Orthopaedic Association and currently ongoing. Consent to participate anonymously and Consent for publication was obtained within survey responses.

RESULTS:
41 respondents among 121 members of IOSS-PCI participate in this survey. Several important findings include:
1. Only 20% always and 24,4% usually perform Fall Risk Assessment after finding Vertebral Fragility Fracture.
2. 62,2% never and 8,9% rarely gives denosumab for vertebral fragility fracture.
3. Fracture Liaison Service are the lowest available service (2,4%) among respondent's workplaces.

DISCUSSIONS:
Fall risk assessment is not routinely performed mostly either due to lack of time, not a standard assessment, or not used to assess. Denosumab are still rarely given due to lack of availability and its cost. Fracture Liaison Service is important and beneficial yet is the lowest available service among respondent's workplaces.

CONCLUSION:
Call to Action in Indonesia is desired to overcome gaps in secondary fracture prevention after vertebral fracture, including concern to fall risk, treatment options provided, and availability of Fracture Liaison Service across Indonesia.

REFERENCES:
International Osteoporosis Foundation. Fragility Fractures. 2024. https://www.osteoporosis.foundation/health-professionals/fragility-fractures. Accessed March 7th 2024. etc.

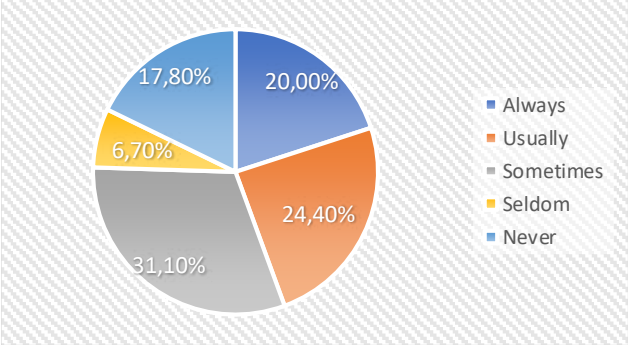


Figure 1: Fall Risk Assessment after Vertebral Fragility Fractures Finding

INITIATION OF ANTI-OSTEOPOROSIS MEDICATION, CALCIUM AND VITAMIN D SUPPLEMENTATION AND COMPLIANCE AFTER 6 MONTHS AMONG HIP FRACTURE PATIENTS

[1]Shohor N.A, [1]Jeyakumar S, [1]Leong J.F, [2]Yin M.K, [1] Rani R.A, [1]Mokhtar S.A

1. *Fracture Liaison Service/ Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*
2. *Pharmacological Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
Osteoporosis, characterized by excessive bone loss, poses significant public health challenges for elderly individuals, both men and women. The long-term nature of medication required for osteoporosis management presents adherence challenges similar to those seen in chronic conditions like hypertension and diabetes. Suboptimal medication adherence in osteoporosis has been linked to increased risks of fractures and elevated all-cause mortality among the elderly population.

MATERIALS & METHODS:
This prospective study conducted from January to December 2023, focusing on elderly patients aged 55 years and above who presented with fragility hip fractures at our hospital. Identification of these patients was conducted by our Fracture Liaison Service Coordinators, excluding those with severe trauma, malignancy, or steroid-induced fractures. Comprehensive demographic data, medication prescriptions, and surgical information were meticulously recorded. Patients were initiated on osteoporosis-related treatment and systematically followed up for a duration of six months. Compliance with calcium, vitamin D, and anti-osteoporotic medication was assessed after six months among patients enrolled from January to July 2023.

RESULTS:
A total of 150 patients were identified and consulted by the Fracture Liaison Service (FLS). Remarkably, 96% of these patients received calcium and vitamin D supplementation either upon discharge or during follow-up. Among the patients with hip fragility fractures, 119 (80%) patients agreed to initiate anti-osteoporotic medications, with the majority opting for anti-resorptive treatment (93%) over anabolic therapy (7%).

Interestingly, 70% of patients commenced anti-osteoporotic medications during their hospital stay, while the remaining 30% began treatment as outpatients during follow-up, often necessitating time to discuss treatment costs with family members.

After six months, compliance rates were noted to be 100% for calcium and vitamin D supplementation, and an impressive 95% for anti-osteoporotic medications. However, a reduction of 5% in compliance was observed. Various factors were identified contributing to this decline, including financial constraints, transportation difficulties to hospital visits, and unspecified reasons leading patients to default or discontinue treatment.

CONCLUSION:
Improving compliance with anti-osteoporosis treatment hinges on the deployment of effective pharmacological management strategies. Collaborative efforts among healthcare team members, coupled with multidisciplinary approaches, can greatly enhance outcomes for individuals managing osteoporosis. The integration of Fracture Liaison Services (FLS) serves as a cornerstone in this realm, pivotal for facilitating early intervention and nurturing patient commitment to treatment protocols.

A 6-YEAR UPDATE ON PATIENT OUTCOMES OF THE UNIVERSITY OF THE PHILIPPINES – PHILIPPINE GENERAL HOSPITAL ORTHOGERIATRIC MULTIDISCIPLINARY FRAGILITY FRACTURE MANAGEMENT MODEL AND FRACTURE LIAISON SERVICE

Rebato, PL; Abesamis, JB; Tabu, I.
Department of Orthopedics, University of the Philippines – Philippine General Hospital, Taft Avenue, Manila, Philippines

INTRODUCTION:
Osteoporosis and fragility fractures represent significant public health challenges, resulting in notable morbidity and economic burdens on a global scale. In response, the University of the Philippines – Philippine General Hospital (UP-PGH) introduced the Orthogeriatric Multidisciplinary Fracture Management Model (OFMM) and Fracture Liaison Service (FLS) in October 2017, an initiative aimed at providing comprehensive, high-quality care for individuals suffering from osteoporosis and fragility fractures.
The objective of this study is to outline the characteristics of patient who were managed through the UP-PGH OFMM and FLS between January 2018 and October 2023.

MATERIALS & METHODS:
This follow-up study assesses the Orthogeriatric team's effectiveness in treating geriatric patients with acute hip fractures. Analyzing patients treated by the OFFM and FLS team at UP-PGH, the study relied solely on medical records.

RESULTS:
From January 2018 to October 2023, 289 patients were managed by the multidisciplinary team, with an average age of 75. The average hospital stay was 13.80 days. 26 patients (9%) had surgery within 48 hours of admission, while 189 patients (65%) had surgery between 3-7 days.

147 patients (51%) were able to follow up for at least 6 months at the outpatient clinics. 32 patients (11%) died. 234 patients (81%) were compliant with maintenance medications on follow-up. 181 patients (63%) were able to do full weight bearing on latest follow-up.

DISCUSSIONS AND CONCLUSION:
The findings underscore the pivotal role of the Multidisciplinary Care (MDC) and Orthogeriatric team in optimizing patient care. Despite identifying areas for enhancement, such as length of hospital stay and time to surgery, the outcomes demonstrate promising strides towards achieving standard care protocols. These results emphasize the significance of continued refinement and implementation of comprehensive care strategies to enhance outcomes and overall quality of orthogeriatric care.

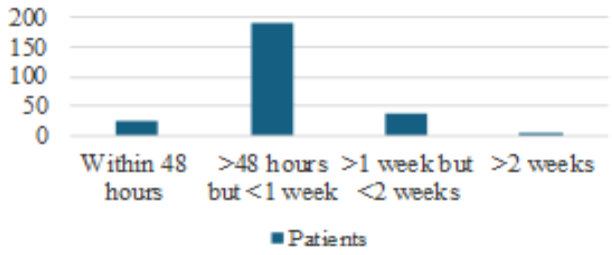


Figure 1: Time to Surgery from admission (days)

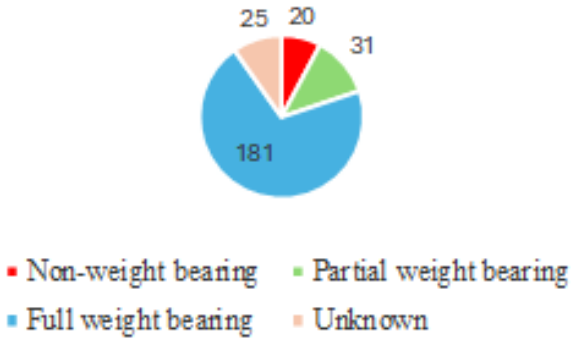


Figure 2: Weight bearing status on latest follow-up

FROM ASSESSMENT TO ADHERENCE: A REVIEW OF PATIENT COMPLIANCE IN PREVENTING FRAGILITY FRACTURE

[1]Amin, Alvina; [1]Moiz, Anum; [1]Ali, Shehreen; [1]Meherali, Samreen; [1]Hooda, Khairunnissa.
1. Division of Nursing Services, The Aga Khan University Hospital, Karachi, Pakistan

INTRODUCTION:
Primary or secondary fractures are a major global health concern that affect both individuals and healthcare systems (Conley et al., 2020). Although primary fracture prevention protocols and techniques to reduce the risk of secondary fractures in the future have advanced, non-compliance with these important guidelines remains an ongoing concern (Borgström et al., 2020).The aim of this survey was to explore the compliance for primary and secondary fracture prevention protocol as well as recommend strategies to overcome the non-compliance.

MATERIALS & METHODS:
The study participants were recruited through retrospective purposive sampling. A total of n=100 participants were recruited. The study duration was from October 2023 to December 2023 who had undergone through total hip replacements. The study setting was one of the tertiary care hospitals at Karachi, Pakistan. Patients with a history of primary fractures or those who, according to a clinical assessment, were at an increased risk of fractures were included in the inclusion criteria. The records were reviewed for basic bone analysis including Vitamin D, Bone mass index and follow up services availed or not in case of deviations in results than normal.

RESULTS:
The analysis of n=100 patient records revealed alarmingly low adherence to primary fracture prevention measures, with only 8% of patients participating in essential assessments. Subsequent 100% non-compliance rates in follow-up actions underscore the urgent need for targeted interventions. Interestingly, very few patients showed that they followed certain preventive measures, which suggests areas that should be targeted with interventions.

DISCUSSIONS:
Only 8% of patients follow primary fracture prevention methods, which is a significant difficulty. Only 8% of patients participate in critical evaluations such as bone analysis, BMI monitoring, and vitamin D testing. This aligns with other studies that emphasise the complex obstacles to patient compliance in fracture prevention (Borgström et al., 2020; Conley et al., 2020).

CONCLUSION:
In conclusion, the analysis of the records showed that there is low compliance to the fracture prevention protocol. To address identified challenges, tailored made recommendations which includes creating specialized guidelines that center on patient education, engagement, and support.

REFERENCES:
1. Borgström, F., Karlsson, L., Ortsäter, G., Norton, N., Halbout, P., Cooper, C., Lorentzon, M., McCloskey, E. V., Harvey, N. C., & Javaid, M. K. (2020). Fragility fractures in Europe: burden, management and opportunities. *Archives of osteoporosis*, *15*, 1-21.
2. Conley, R. B., Adib, G., Adler, R. A., Åkesson, K. E., Alexander, I. M., Amenta, K. C., Blank, R. D., Brox, W. T., Carmody, E. E., & Chapman-Novakofski, K. (2020). Secondary fracture prevention: consensus clinical recommendations from a multistakeholder coalition. *Orthopaedic Nursing*, *39*(3), 145-161.

THE RELATIONSHIP BETWEEN T-SCORE OF BONE MINERAL DENSITOMETRY AND FRAGILITY FRACTURES OF THE HIP

[1]Melvinder S, [2]Suhana SB.
Orthopaedic Department, Hospital Melaka, Jalan Mufti Haji Khalil, 75400, Melaka

BACKGROUND:
Fragility fractures of the hip are one of the most prevalent healthcare problems faced globally, with the associated high rates of hospitalization related morbidity and financial burden. The aim of this study is to assess the relationship between the incidence of hip fractures and the bone mineral densitometry score at the time of trauma.

MATERIALS AND METHODS:
This retrospective study includes 100 patients from the ages of 55 years old and above who had sustained a low energy hip fracture in Hospital Melaka in 2022 and 2023, of which had bone mineral densitometry scan done within 1 month of trauma and had not been on anti-osteoporotic drugs prior. The patients were then divided based on the T-score of their BMD scans.

RESULTS:
100 patients were included in the study (mean age 75) with 63 patients with a T-score of -2.5 to -3.5. The final result of this retrospective study is still ongoing.

DISCUSSION:
The current guideline recommends the initiation of anti-osteoporotic drugs at a T-score of -2.5 and below, however it has been recorded that a large number of patients with T-scores above -2.5 have sustained fragility fractures following trivial trauma. Based on the data of patients in Hospital Melaka, there have been patients with T-scores of -1 sustaining fragility fractures of the hip. Therefore, could a revised benchmark of T-score for anti osteoporotic drug initiation aid in achieving a reduction in the incidence of hip fracture?

CONCLUSION:
Bone mineral densitometry is an appropriate modality which is non-invasive, quick and objective in the diagnosis of osteoporosis, which should be utilized as a regular screening tool in the early detection of osteoporosis. The mean T-score at the time of trauma of patients who sustained fragility fractures of the hip is a more precise indicator on initiating anti-osteoporotic drugs for all patients screened.

EVALUATING OSTEOPOROSIS TREATMENT GAP POST FRAGILITY HIP FRACTURE IN A PUBLIC TERTIARY HOSPITAL IN SABAH

Yee Ling Wong; Gordon Hwa Mang Pang
Geriatric Unit, Department of Medicine, Hospital Queen Elizabeth, Sabah

INTRODUCTION:
Secondary prevention of fragility fractures is crucial in reducing the risk of imminent fracture. This study aims to assess the initiation rate of anti-osteoporosis medications and to identify the factors associated with osteoporosis treatment after fragility hip fractures.

MATERIALS & METHODS:
A retrospective study was conducted in cases referred to Fracture Liaison Service following fragility hip fracture between February 2022 to February 2024.

RESULTS:
A total of 91 cases were included for analysis. The median age is 79.2 years and about three-quarters being female and frail (Clinical Frailty Score 4-5). Majority were mobile outdoors and surgery rate is 92.3%.

The rate of initiation of anti-osteoporosis medication at discharge is 73.6%. 26.4% were discharged with calcium and vitamin D, 65.9% were discharged with calcium, vitamin D and bisphosphonate and 7.7% were discharged with calcium, vitamin D and denosumab.

There was an association between the mode of treatment of fragility hip fracture with non-prescription of anti-osteoporosis medications. (p value <0.01). None of those treated conservatively received anti-osteoporosis medication during discharge, while only 20.2% of those that underwent surgery were not initiated on anti-osteoporosis medication.

However, no significant association was found between gender, age group, pre-fracture mobility and frailty with initiation of anti-osteoporosis medication during discharge.

DISCUSSIONS:
Most of the patients were prescribed with alendronic acid, a bisphosphonate. This is mainly due to the limited availability of other anti-osteoporosis medications in the hospital.

Furthermore, our study shows that the mode of treatment influences the initiation of anti-osteoporosis medication. Patients treated conservatively were not initiated with anti-osteoporosis medication, indicating a neglect to osteoporosis management in this group.

CONCLUSION:
FLS establishment helps in reducing the osteoporosis treatment gap following fragility fracture. However, further effort is needed to improve the management of osteoporosis, particularly in patients treated conservatively.

REFERENCES:
1. Mahaisavariya, C., Vanitcharoenkul, E., Kitcharanant, N. et al. Exploring the osteoporosis treatment gap after fragility hip fracture at a Tertiary University Medical Center in Thailand. BMC Geriatr 23, 70 (2023).
2. Sadat-Ali M, AlShammari SM, Uddin FZ, Alani FM, Dahduli OS. Are we closing the gaps in the management of osteoporosis following fragility fractures of the femur? Journal of International Medical Research. 2019;47 (5): 1843-1847.

FRAILTY AND FALL RISK STATUS OF OLDER ADULTS IN QUEZON PROVINCE

Abundabar, Filipinas G; Ferreras, Ana Libabel U.; Magsaysay, Jocelyn L.; Maranan, Arlene D.
College of Nursing, Sacred Heart College, 1 Merchan Street, Lucena City, Philippines

INTRODUCTION:
The Filipino aging population faces challenges like frailty and falls affecting 10-16.3% of those over 65. Falls annually cause severe injuries, worsening frailty. The government has enacted laws to aid older adults. Sacred Heart College of Lucena City, Inc., active in community health programs since 2013, assesses frailty and fall risks among 70 older adults in Quezon Province, aiming to develop interventions.

MATERIALS & METHODS:
A descriptive-quantitative design was used to evaluate 70 older adults from Quezon, Philippines, who were purposively recruited for one-on-one interviews and testing using validated tools: Edmonton Frail Scale (EFS), Four-Stage Balance Test (4SBT), and 30-Second Chair Stand Test to assess frailty and fall risk, identifying demographic factors.

RESULTS:
Seventy older adults underwent assessment including the Edmonton Frail Scale (EFS), Four-Stage Balance Test (4SBT), and 30-Second Chair Stand Test. Most were female (76%), had elementary education (74%), and reported a family income of less than ₱10,597 (87%). Eighty nine percent lived with relatives, and 64% reported no falls in the past year. Results showed that 52% were non-frail according to the EFS, while 63% and 49% were not at risk for falls based on the 4SBT and 30-Second Chair Stand Test, respectively.

DISCUSSIONS:
The 2020 Census and this study highlight challenges for Filipino older adults, including financial strain and a high fall incidence. Despite resilience, vulnerabilities persist, tied to age, education, and income. Engagement in activities like Zumba enhances well-being, but age-related frailty risks require attention to factors like nutrition and socio-economic status. Research by van Gameren et al. (2022), Fogg et al. (2022), and others stress the link between frailty and falls, affected by modifiable factors such as cognitive impairment and physical inactivity.

CONCLUSION:
Predominantly female older adults aged 65 to 84, with elementary education and low income, reside with relatives and report minimal falls. Though many were not frail, a notable proportion showed vulnerability, and some faced increased fall risk. Tailored interventions, emphasizing physical activity and addressing modifiable risk factors, are essential. Future research should delve into socioeconomic influences and implement multifaceted interventions to promote healthy aging.

	Frequency N=70	Percentage
FOUR-STAGE BALANCE TEST		
Not at Risk for Fall (>10 secs)	44	63%
Risk for Fall (<10 secs)	26	37%
30-SECOND CHAIR STAND		
No Risk for Fall (above average)	34	49%
Risk for Fall (below average)	36	51%

Figure 1: Frail Assessment Score

EDMONTON FRAIL SCALE (EFS)	Frequency N=70	Percentage
Not Frail (0-5)	37	52%
Vulnerable (6-7)	20	29%
Mild Frailty (8-9)	9	13%
Moderate Frailty (10-11)	4	6%

Figure 2: Risk for Fall Assessment Score

THE EFFECT OF DENOSUMAB IN ELDERLY PATIENTS ON BONE DENSITY AND FRACTURE RISK

[1]Abdul Halim H; [1,3]Tiew WP; [1]Mohd Jeffri NS; [1]Makpol FI; [2]Chong EGM
1. *Department of Pharmacy, Hospital Kuala Lumpur*
2. *Geriatric Unit, Hospital Kuala Lumpur*
3. *Faculty of Pharmacy, University Kebangsaan Malaysia*

INTRODUCTION:
Denosumab is a potent antiresorptive agent leading to significant reduction in vertebral and non-vertebral fractures risks among postmenopausal osteoporosis. The effect of denosumab use in elderly patients in real world setting lacks data to date. The purpose of this study was to determine the effectiveness of denosumab in elderly patients.

MATERIALS & METHODS:
This is a retrospective cohort study on medical record review, on geriatric patients prescribed with denosumab. All patients aged 60 years and above, prescribed with at least two doses of denosumab and followed up under Medical and Orthopedic Clinics in Hospital Kuala Lumpur between January 2022 till December 2023 were recruited. Any cases with incomplete history or untraceable record were excluded from the study. Sample size calculation of 206 patients were estimated to achieve a power of 80% with 95% confidence interval (CI). Demographic and clinical data were presented descriptively, while paired t-test was used in continuous variables with normal distribution for comparison in RStudio version 2023.12.1+402. P-value less than 0.05 is considered significant.

RESULTS:
Out of 439 patients screened, only 200 patients were recruited into this study. The mean age ± standard deviation (SD) of the recruited patients is 77.3±8.3 years old with 84.7% of them were female. Most of the patients were able to ambulate independently (75.7%) and 43% of the patients had clinical frailty scale (CFS) of 5. Almost half of the patients had a prior fracture history and 64.4% had received prior treatment before denosumab. The mean treatment duration with denosumab is 29.7±20.8 months. Increases in BMD mean percentage difference were observed in all measurement sites compared to the baseline (0.38±0.14% for the lumbar spine [P=0.306], 3.72±2.90% for the femoral neck [P=0.035] and 1.83±2.11% for the total hip [P=0.048]). Six patients (2.9%) sustained recurrent fracture within 12 months of treatment and another 5.9% patients sustained recurrent fracture after 12 months of treatment.

DISCUSSIONS:
Recurrent fracture and unremarkable BMD improvement might be linked to other factors such as delay in getting subsequent injection and possibility of Vitamin D deficiency which was not properly monitored in this study.

CONCLUSION:
There is a need for thorough screening and monitoring of denosumab treatment persistence and its affecting factors.

REFERENCES:
1. Yazan CD, et al. Effect of denosumab treatment on bone mineral density and bone turnover markers in osteoporotic patients: real-life experience 2-year follow-up. Arch Osteoporos. 2022 Sep 17;17(1):125.
2. Jeong C, Ha J. The Effect of denosumab on bone mass in super elderly patients. J Bone Metab. 2020 May;27(2):119-124.

EXPLORING BONE MINERAL DENSITY SCREENING PATTERNS IN ORTHOPEDIC PATIENTS: A YEAR-LONG ANALYSIS AT A LEADING MALAYSIAN TERTIARY HOSPITAL

[1]Jeyakumar S, [1]Leong J.F, [1]Shohor N.A, [1] Rani R.A, [1]Mokhtar S.A
1. *Fracture Liaison Service / Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
The assessment of bone mineral density (BMD) through dual-energy x-ray absorption (DEXA) scans is widely recognized as the standard screening method for evaluating the risk of fragility fractures. BMD measurement is considered the preferred diagnostic tool for osteoporosis, with recommendations for ideally assessing the lumbar spine (L1-L4, posteroanterior) and hip (including the femoral neck or total hip). Alternatively, if measurement at the spine and hip is not feasible, assessment at the forearm (1/3rd radius of the non-dominant forearm) is suggested. BMD results are typically reported as T-scores, representing standard deviations. A T-score of -1 and above indicates normal bone density, while a T-score between -1 and -2.5 indicates osteopenia, and a T-score of -2.5 or below indicates osteoporosis.

MATERIALS & METHODS:
This study comprises random screenings conducted from January to December 2023, focusing on elderly patients aged 55 years and above who visited our orthopedic clinic. These patients were referred for bone density scans. The hip T-score derived from the DEXA scan determined their classification into normal, osteopenia or osteoporosis categories.

RESULTS:
A total of 603 patients were included in the study, with a median age of 75 years. Analysis of the DEXA scan results revealed that 36% of patients exhibited normal bone density. Osteopenia was observed in 47% of patients, while 17% were classified as osteoporotic.

CONCLUSION:
Bone mineral density, measured through a bone mineral density scan, is the preferred diagnostic tool for osteoporosis. Therefore, it is advisable to suggest this non-invasive and painless scan as a screening program for all individuals aged 55 and older, irrespective of whether they have experienced fragility fractures in the past. This scan provides valuable insights into bone health and helps identify individuals at risk of osteoporosis-related fractures.

KNOWLEDGE OF OSTEOPOROSIS AMONG REGISTERED NURSES WORKING IN ORTHOPEDIC AND TRAUMATOLOGY DEPARTMENT IN ONE OF THE UNIVERSITY HOSPITAL

[1,2] Shohor NA; [1]Leong JF; [1]Mokhtar SA; [1]Kanapathy T

1. *Fracture Liaison Service, Department of Orthopedics and Traumatology, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia*
2. *Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

INTRODUCTION:
Osteoporosis, known as 'Silent Disease,' is a significant public health problem in Malaysia apart from Diabetes and Hypertension. Millions of people around the world who have osteoporosis were unaware until a fracture occurred or when bone screening was conducted. Very few studies reported on osteoporosis awareness, and our hospital took the initiative to investigate the knowledge regarding osteoporosis among registered nurses working in the Orthopaedic and Traumatology Department.

MATERIALS & METHODS:
Forty registered nurses aged 25 years old and above working in the Orthopaedic and Traumatology Department were assessed using the Osteoporosis Questionnaire (OPQ). The knowledge of osteoporosis in the study was evaluated using the OPQ, a reliable and validated questionnaire to examine the knowledge on osteoporosis with only one correct answer for each multiple-choice question. This cross-sectional study was conducted at the Hospital Canselor Tuanku Muhriz from May 2023 to July 2023. Data was analyzed using the IBM Statistical Package for Social Sciences (SPSS).

RESULTS:
The results of this study are significant as they show that out of 40 respondents, almost all respondents, 97.5% of the nurses, have heard about osteoporosis. However, only 90% have defined porous bone as osteoporosis, while the remaining 10% gave wrong answers as spondylitis and unknown.

82.5% of the respondents have more than three years of experience, 10% with experience between one and three years, and the remaining 7.5% with less than three years of working experience. Less than half (45%) of these respondents have attended an osteoporosis-related course, 52.5% have not attended, and one respondent (2.5%) did not give any answer.

DISCUSSIONS AND CONCLUSION:
This study demonstrates Orthopaedic department registered nurses in our hospital do have adequate knowledge and awareness about Osteoporosis. However, a national structured health educational programme or module among nurses need to be implemented and such programmes should be designed on the basis of the parameters of appropriate model. This will contribute to more awareness and increase the knowledge gap that will enhance the effectiveness in detecting and treating Osteoporosis in the community.

These findings highlight the need for further education and training, which can significantly improve patient care and outcomes.

PREVALENCE AND RISK FACTORS OF OSTEOPOROSIS AMONG POSTMENOPAUSAL WOMEN OF RURAL NEPAL

Dipendra Pandey[1], Samina Basnet[2], Smeena Pradhananga[3], Pawan Kumar Hamal[4]
1. *Department of Orthopaedics, Trishuli Hospital, Nuwakot, Nepal*
2. *Nursing Officer, Trishuli Hospital, Nuwakot, Nepal*
3. *Department of Obstetrics and Gynecology, Trishuli Hospital,Nuwakot, Nepal*
4. *Department of Anaesthesiology, Trishuli Hospital, Nuwakot, Nepal*

INTRODUCTION:
Osteoporosis poses a significant health concern globally. This study aims to investigate the prevalence of osteoporosis among postmenopausal women in rural Nepal and identify associated factors. Additionally, it seeks to understand the impact of demographic, and biochemical variables on bone mineral density (BMD) to inform preventive strategies.

MATERIALS & METHODS:
A cross-sectional study involving 384 postmenopausal women from rural districts of Nepal was conducted. Data collection included demographic information, BMD measurements using DEXA scan, and assessments of serum calcium, albumin, and vitamin D levels. Statistical analyses were performed to determine the prevalence of osteoporosis, assess associations between variables, and identify predictors of low BMD.

RESULTS:
Among the participants, 23.44% had osteoporosis, and 42.44% had osteopenia, indicating a considerable burden of bone disorders in the study population. Factors such as age, body mass index (BMI), menopausal history, and smoking status showed significant associations with BMD.

DISCUSSIONS:
The findings underscore the importance of addressing modifiable risk factors for osteoporosis, including age-related BMD decline, menopausal changes, and lifestyle factors such as smoking and BMI. Interventions targeting nutrition, smoking cessation, and awareness campaigns can play a crucial role in preventing osteoporosis-related complications.

CONCLUSION:
This study provides valuable insights into the prevalence of osteoporosis and associated factors among postmenopausal women in rural Nepal. It highlights the need for targeted interventions to promote bone health and prevent osteoporosis-related complications in this population. Policy-level initiatives and public health campaigns are essential for addressing this significant public health issue effectively.

REFERENCES:
1. D'Ameilo P, Spertiono PE, Martino F, et al. Prevalence of postmenopausal osteoporosis in Italy and validation of decision rules for referring women for bone densitometry. Calif Tissue Int 2013; 92:437-43.
2. Chen SJ, Lin CS, Lin CL, et al. Osteoporosis is associated with high risk for coronary heart disease: a population-based cohort study. Medicine (Baltimore) 2015; 94:e1146.

Free Paper Poster Presentation

Poster ID	Title	Authors
Acute Management of Fragility Fractures		
PA01	Machine Learning Insights Into Cemented Or Uncemented Hemiarthroplasty For Intracapsular Hip Fracture: A Causal Forest Analysis Of The WHiTE 5 Trial	**Matthew Costa,** Bolbocean C, Hattab Z, O'Neill S
PA02	Double Plates Fixation (Volar And Dorsal) For Multifragmentary Articular Distal Radius Fractures In Their 60s.	**Yasuhiro Seki**
PA03	An Audit Comparing Dual Orthogeriatric Models At One Hospital	**Himali Chandra Aickin**, Watkin-Brown H, Bell-Hardy D, Wright M, Walton J
PA04	Role Of Dynamic Condylar Screw In Fixation Of Periprosthetic Osteoporotic Femur Fractures	**Ravindraa Thaigaraja,** Narinder S, Pavethiran P, Gurmeet S
PA05	Clinical Outcomes Of Direct Anterior Approach In Bipolar Hemiarthroplasty For Neck Of Femur Fracture: A Case Series	**Muhammad Ashraf Fareeq Shamsuddin**, Ahmad Hanif KA, Seri Masran M, Che Hamzah F
PA06	Timing Of Surgery For Elderly Hip Fractures In A Secondary Hospital In Malaysia	**Chew Jia En,** Keng JN, Ch'ng A, Tan SW, Yap LC, Muhd Fikri, Hafizah, Adilah, Saviana, Mohd Harris, Chin CJ
PA07	Fracture Liaison Service In A Pandemic: Did COVID-19 Disrupt Hip Fracture Care For Older Persons?	**Malarkodi Suppamutharwyam,** Chong EGM
PA08	Anticoagulant Use In Hip Fracture Patients In Brunei Darussalam	**Sanjeev Tripathi,** Yakob AH, Pande K
PA09	Dislocation Following Hip Replacement Surgery. Hospital Seberang Jaya Experience	**Fitri Nabilah,** Aida NS, Mohamed Harris A, Abdul Aziz Y, Gurmeet S
PA10	There Is Frequently More To Be Learned From The Unexpected With Fragility Hip Fracture	**Fitri Nabilah,** Aida NS, Mohamed Harris A, Abdul Aziz Y, Gurmeet S
PA11	Complication Profile Of Hip Fracture Patients Treated With Arthroplasty	**En Lin Goh,** Png ME, Metcalfe D, Cook J, Costa ML
PA12	Bioelectrical Impedance Vector Analysis In Elderly Hip Fracture Patients	**Seung Kyu Lim,** Lim JY
PA13	Multidisciplinary Approach In Thyrotoxicosis Patient With Fragility Hip Fracture, A Case Report	**Foo Kuok Thong,** Ho YY, Jacob VA
PA14	Socio-Demographic And Clinical Characteristics Of Patients Admitted With Incident Hip Fracture To A Tertiary Healthcare Center In Southern, Sri Lanka	**Sarath Lekamwasam,** Dias H, Rathnayake N, Abeygunasekara T
PA15	Prevalence And Factors Associated With Sarcopenia In Hip Fracture Patients Admitted To Teaching Hospital Karapitiya, Sri Lanka	**Sarath Lekamwasam,** Dias H, Rathnayake N, Abeygunasekara T

Free Paper Poster Presentation

Poster ID	Title	Authors
Acute Management of Fragility Fractures		
PA16	A Multidisciplinary Approach To Reduce Length Of Stay (LOS) In Older Adults With Hip Fracture: An Evidence-Based Implementation	**Xueting Wu,** Murphy D, Wong LLB
PA17	Enhancing Orthogeriatric Care: A Comprehensive Approach In Emergency And Perioperative In Patient Settings	**Gulwani Azmeena Nizar,** Islam B, Hooda K, Amin A
PA18	Bilateral Cemented Bipolar Hemiarthroplasty Via Direct Anterior Approach In Bilateral Neck Of Femur Fractures: A Case Report	**Muhammad Ashraf Fareeq Shamsuddin,** Ahmad Hanif KA, Seri Masran M, Che Hamzah F
PA19	Tailoring Osteoporotic Hip Fracture Fixation For Parkinson's Patients: A Piriformis Preserving-Posterior Approach	**Kathiravan Murugan,** Khairil Anwar AH, Siti Munira SM, Fahrudin CH
PA20	Atypical Femur Fracture: A Complication Of Long Term Biphosphanate Therapy	**Lim Jun Yi,** Ong SL, Divenno J, Lee MF
PA21	Application Of Cement-Augmented Pedicle Screw In Elderly With Osteoporotic Vertebral Fracture	**Aishah Najihah Zainal Abidin**
PA22	Elevating Care: Percutaneous Kyphoplasty As The Premier Choice For Osteoporotic Vertebral Compression Fractures (OVCF)	**Kathiravan Murugan,** Fadzrul Abbas MR, Lim TS, Mohd Hezery H
PA23	Fixation For Vertebral Fractures With Diffuse Idiopathic Skeletal Hyperostosis, Using Techniques Such As Transdiscal Screws Or Cement Fenestrated Screws.	**Shinichiro Takao,** Kazuhiro T, Kentaro Y, Nofumi S, Toru S
PA24	Surgical Techniques In Geriatric Ankle Fractures	**Lakshmi Priyaa Singram,** Lim SM, Wan KL, Kam ML, Ibrahim MI, Balakrishnan TT
PA25	"Unveiling Fragility: A Rare Case Report On A Trivial Injury Of Bilateral Periprosthetic Femur Fracture Following Total Knee Arthroplasty"	**Magdalen Anthony,** Shahrul, Minguan, Satriya SHA
PA26	Percutaneous Screw Stabilization Facilitates Rapid Pain Relief And Functional Recovery For Octogenarians With Lateral Compression Type Fracture Of Pelvis: A Retrospective Observational Study	**Chung Hwan Chen** Lin SY, Wu YZ, Lee JY, Lee TC, Chen JC, Ho CJ

Free Paper Poster Presentation

Poster ID	Title	Authors
Policy or Practice Changes		
PP01	Vertebral Fragility Fracture: A Descriptive Study Of Where We Are In Brunei Darussalam	**Chia Wei Tan,** Poh AWY
PP02	Modifiable Factors On Osteoporosis Risk Among Postmenopausal Women In Malaysia: A Systematic Review And Meta-Analysis	**Mohd Ariff Sharifudin,** Nordin SH, Mohamed SZ, Taib MNA, Kamudin NAF
PP03	Do It Correctly And You Will Be Amazed With The Outcome	**Aida Nurani Sobri,** Nabilah F, Mohammed Harris A, Abdul Aziz Y, Gurmeet S
PP04	Game Changer In Managing Hip Fracture In Hospital Seberang Jaya	**Aida Nurani Sobri,** Nabilah F, Mohammed Harris A, Abdul Aziz Y, Gurmeet S
PP05	A Retrospective Study On Correlation Between 4ATest And Clinical Characteristics In Ortho-Geriatric Patients In A Tertiary Centre, Malaysia	**Sharalaa Devi Engatramana,** Ungku Ahmad Ameen UMZ, Makhtar NH
PP06	Femoral Diaphyseal Stress Fracture in a Geriatric Male with Normal Bone Mineral Density: A Case Report	**Hayden Jackson Cross,** David S
PP07	Fracture Liaison Service Initiation In Banjarmasin, Indonesia	**Zairin Noor,** Izaak ZA, Siagian, AMH, Putera HD, Damayanthi ED, Kesuwa W, Iqbal M, Tobing SAL, Septadi RI, Nurikhwan PW
PP08	Factors Associated With Recurrent Falls And Its Outcome 6 Months Post Intervention In Fall Clinic, Primary Care Clinic Kuala Lumpur (KKKL)	**Nagammai Thiagarajan,** Tay KL, Basari SB, Yahaya N, Pandi A
PP09	Expansion Of Fracture Liaison Services For The Patients With "Unrecognizable Vertebral Fractures" On Chest/Abdominal CT Sagittal Images	**Toru Honda**
PP10	Cost-Utility Analysis Of Fracture Liaison Service In Osteoporotic Hip Fracture Patients At Tertiary Care Hospital In Thailand	**Tanawat Amphansap,** Boontan C, Therdyothin A
PP11	Addressing The Impending Challenges Of Aging: Implementing A Geriatric Therapy Nurse Policy In The Philippines	**Neil B. Geneblazo,** Angkico CJF, Miranda KRY, Faustino DC
PP12	A Qualitative Study On The Enhancement Of Fracture Prevention Policies	**Vanitha Thurairasu**
PP13	Falls Risk Assessment In The Park - Is It A Case Finding Opportunity?	**Nareshraja Janardanan,** Ho YB, Ong WF, Tay HW, Mohamad Zahir MZ, Suppamutharwyam M, Kok SH, Embong J, Razali RM
PP14	Enhancing Team Communication In Fracture Liaison Services: A Key Factor In Osteoporotic Fracture Management	**Dhineish Kumaara,** Wong TS

Free Paper Poster Presentation

Poster ID	Title	Authors
Rehabilitation		
PR01	Comparison Of Functional Outcome In CKD And Non-CKD Patients Following Femoral Neck Fracture Undergoing Bipolar Hemiarthroplasty	**Ong Art Phruetthiphat,** Pinijprapa P, Plumarom Y, Satravaha Y
PR02	Minimally Clinically Important Difference Of The Kansas University Standing Balance Scale In Older Inpatients At Tertiary Hospital	**Asall Kim,** Ji M, Kim YJ, Lim JY
PR03	The Impact Of Vertebral Fragility Fractures On Patient Outcomes	**Chia Wei Tan,** Poh AWY
PR04	Utilisation Of Hip Abduction Brace To Manage Recurrent Dislocation In Post-Operative Hip Hemiarthroplasty Patient With Dementia - A Less Invasive Yet Reliable Approach	**Muhammad Najmi Ab Ghani,** Ahmad Hanif KA, Che Hamzah F, Seri Masran M
PR05	Age-Related Changes In Cortical Activation Pattern And Gait Variables During Obstacle Negotiation With Cognitive Task	**Byeong Uk, Gam,** Yeo SS
PR06	Strategies For Enhancing Inpatient Intensive Rehabilitation In Fragility Femoral Fracture Cases Rejecting Surgery Following Post COVID-19 Critical Care	**Raden Givan Merandi Suganda,** Defi IR
PR07	Neglected Femoral Neck Fracture In A Malnourished Elderly Patient With Parkinson's Disease: A Case Report Study	**Awab Zakie Habibie,** Arisanti F, Goesasi RZ, Defi IR
PR08	Fragility Fractures Of The Hip In Lower Limb Amputees: A Case Series	**Lee Hwee Ming,** Lim WC

Free Paper Poster Presentation

Poster ID	Title	Authors
Secondary Prevention of Fragility Fractures		
PS01	Comparison Of OSTA, BMI, FRAW And PIO In Predicting Osteoporosis Among Older Filipino Patients Seen At National Center For Geriatric Health, San Miguel, Manila	**Venjune P Tansiongco,** Merced CMA, Jiloca JLV, Gatpatan JM
PS02	Evaluating The Impact Of Extended Fasting On Outcome Among Hip Fracture Patients	**Terence Ong,** Yeat NS
PS03	Osteoporosis Care Gap In Brunei Darussalam.	**Sanjeev Tripathi,** Yakob AH, Pande K
PS04	Characteristics Of Fragility Hip Fracture-Related Falls In The Elderly Population: A Systematic Review	**Younji Kim,** Lim SK, Lim JY
PS05	A Sinister Case Of Low Back Pain With Radiculopathy, Arthroplasty In Non-Hodgkin B-Cell Lymphoma	**Mohd Zuhail Abd Rahim,** Nadia MK, Aziah AA, Anuar A
PS06	Prevalence And Distribution Of Osteoporotic Hip Fracture Patients Undergo Surgery In A Malaysian Tertiary Hospital	**Norhafizatul Akma Shohor,** Jeyakumar S, Leong JF, Rani RA, Mokhtar SA
PS07	Communication Attitude Among Registered Nurses In University Hospital	**Norhafizatul Akma Shohor,** Zainudzin SA, Mohd Azhar SN, Leong JF, Mokhtar SA, Jeyakumar S, Abdul Hamid MR
PS08	Commencement Of Anti-Osteoporosis Medication, Calcium And Vitamin D Supplementation For Fragility Fracture Patients And Their Adherence For 6 Months	**Shobah Jeyakumar,** Leong JF, Shohor NA, Yin MK, Rani RA, Mokhtar SA
PS09	Incidence And Distribution Of Different Types Of Anti-Osteoporotic Medications Among Hip Fracture Patients	**Shobah Jeyakumar,** Leong JF, Shohor NA, Yin MK, Rani RA, Mokhtar SA
PS10	Quality Of Life Measured With SarQol Questionnaire With SARC-F Screening Tool For Sarcopenia In The Elderly	**Atiporn Therdyothin,** Kananai N, Amphansap T
PS11	Alendronate Adherence And Its Association Factors: An Audit Of Fracture Liaison Service (FLS) In Hospital Sultan Ismail, Johor Bahru	**Yap Sin Yin,** Chong MN, Othman E, Ramdan K, Loh AY, Tiong WJ, Yap HK, Lim SC, Looi JS, Ng CC, Lim HT
PS12	The Prevalence And Importance Of Frailty In A Regional Australian Inpatient Cohort	**Tien Kheng Khoo,** Hinchliffe L, Spiegel C, Clarkson L
PS13	Calcium And Vitamin D Supplementation In Preventing Secondary Hip Fracture In In Hospital Melaka	**Muhammad Azham Kassim,** Ammar AH, Suhana SB, Seo ST

Free Paper Poster Presentation

Poster ID	Title	Authors
Secondary Prevention of Fragility Fractures		
PS14	Increasing Rates Of Surgical Management For Osteoporotic Hip Fractures In A Malaysian Tertiary Hospital	**Shobah Jeyakumar,** Leong JF, Shohor NA, Rani RA, Mokhtar SA
PS15	Barriers To Compliance With Fracture Liaison Service In Pakistan: Can FFN Address The Patients' Perspectives?	**Tashfeen Ahmad,** Abdul MZ, Nawazis, Z, Jafri L, Majid H, Ahmed S, Amin A, Aftab N, Riaz HM5, Tariq S, Siddiqui S, Younus T, Umer M, Noordin S, Khan AH
PS16	Osteoporosis Liaison Service (OLS) Improved Clinical Outcomes: A 3-Year Report	**Rong Sen Yang** Chan DC, Huang WJ

MACHINE LEARNING INSIGHTS INTO CEMENTED OR UNCEMENTED HEMIARTHROPLASTY FOR INTRACAPSULAR HIP FRACTURE: A CAUSAL FOREST ANALYSIS OF THE WHiTE 5 TRIAL

[1]Bolbocean C; [2]Hattab Z; [2,3]O'Neill S; [4]Costa ML

1. *Nuffield Department of Primary Care Health Sciences, University of Oxford, UK*
2. *Department of Economics, Economics and a University of Galway, Ireland;*
3. *Faculty of Public Health and Policy, Department of Health Services Research and Policy, London, UK*
4. *Oxford Trauma, Nuffield Department of Orthopaedics, Rheumatology & Musculoskeletal Sciences, University of Oxford, United Kingdom*

INTRODUCTION:
Cemented hemiarthroplasty has been recently shown to be an effective treatment in patients with an intracapsular hip fracture. However, it remains unclear which patient groups benefit most from the use of cemented hemiarthroplasty. Knowledge about treatment effect heterogeneity is crucial for decision makers to target interventions towards specific subgroups that have the greatest benefit. We evaluate heterogeneity in the treatment effect of cemented hemiarthroplasty in the WHiTE 5 multicentre, randomized, controlled trial conducted in England and Wales using a machine learning approach, Causal Forests (CF); the study compared cemented with modern, uncemented hemiarthroplasty in patients 60 years of age or older with an intracapsular hip fracture.

MATERIALS & METHODS:
We used CF to estimate subgroup- and individual-level treatment effects to compare cemented with modern, uncemented hemiarthroplasty in patients of 60 years of age or older with an intracapsular hip fracture. We used the EuroQol Group 5-Dimension (EQ-5D) multi-attribute utility scores as the main outcome measure at 1 month, 4 and 12 months follow up.

RESULTS:
Our analysis revealed a complex landscape of response to cemented hemiarthroplasty over a 12-month period. Findings suggest greater variability in treatment effects at the 1-month mark than at subsequent follow-up periods, with particular regard to subgroups based on age. Results showed that conclusions regarding heterogeneity of effects with respect to baseline characteristics, including age, health status, and lifestyle factors like alcohol consumption depend on the timepoint considered. In almost all cases the overall effect estimates lies within the confidence intervals for subgroups estimates.

DISCUSSIONS:
This is the first study that utilised novel machine learning methods to study the heterogeneity of treatment effects in this context, leveraging the power of causal forest models to examine how different patient demographics respond to treatment. Our analysis, while not revealing statistically significant differences across age groups, hints at underlying patterns that may have clinical significance if corroborated by larger, more targeted studies.

CONCLUSION:
Overall one cannot be confident that effects are heterogenous by subgroup or timepoint. The insights from this study underscore the need for personalized treatment strategies that consider individual patient characteristics, triangulated across different time points to minimise the risk of spurious findings.

REFERENCES:
1. Miguel A Fernandez, Juul Achten, Nicholas Parsons, Xavier L Griffin, May-Ee Png, Jenny Gould, Alwin McGibbon, and Matthew L Costa. Cemented or uncemented hemiarthroplasty for intracapsular hip fracture. *New England Journal of Medicine*, 386(6):521–530, 2022.
2. XL Griffin, N Parsons, J Achten, M Fernandez, and ML Costa. Recovery of health-related quality of life in a United Kingdom hip fracture population: the warwick hip trauma evaluation-a prospective cohort study. *The bone & joint journal*, 97(3):372–382, 2015.

DOUBLE PLATES FIXATION (VOLAR AND DORSAL) FOR MULTIFRAGMENTARY ARTICULAR DISTAL RADIUS FRACTURES IN THEIR 60s

Seki Yasuhiro
Department of Orthopaedic Surgery, Suwa Central Hospital, 4300 Chino, Japan

INTRODUCTION:
Single volar locking plate fixation is the most common surgery for the distal radius fracture. However, for the highly-comminuted intraarticular types, this standard procedure is insufficient. Both volar and dorsal double plating was performed on three distal radius fractures (AO Type: 2R3C3).

MATERIALS & METHODS:
Case 1: A 64-year-old woman fell while walking, and had the left wrist pain. X ray showed the comminuted distal radius fracture and CT revealed the distal radius articular surface separated into five fragments. Therefore, we considered neither single volar nor dorsal plating to be suitable, and double volar and dorsal plating to be the choice of treatment. Firstly the external fixator was used for the fracture reduction. Secondly, via volar approach, volar locking plate was fixed with only proximal cortical screws. Thirdly, via dorsal approach, dorsal locking plating was performed. Lastly, the distal locking screws were inserted to the temporally-fixed volar locking plate. (Fig.1) Two weeks after the surgery, the external fixator was removed and wrist range of motion exercise started.

Case 2: A 69-year-old man fell from the house roof (two-meter height), and sustained the left comminuted distal radius fracture. Double volar and dorsal plate fixation was performed without the external fixator.(Fig.2)

Case 3: A 68-year-old woman fell from the ladder (three-meter height), sustaining the both distal radius fractures. Although the right fracture was relatively simple, the left was highly comminuted. Therefore, both fractures were treated with surgical fixation. The right side was fixed with the single volar plate, while the left was with both volar and dorsal plates adding the external fixator. Two weeks after the surgery, the external fixator was removed.

RESULTS:
All three cases obtained bone union and had plate removal. One year after the primary surgery, the functional outcome is good with slightly limited wrist ROM.

CONCLUSION:
Double volar and dorsal plating for AO type C distal radius fracture is clinically equal to single volar plating[1]. However, the double plating is technically demanded, because the screw tip of the dorsal plate can interrupt the volar plate placing on the bone surface, and vice versa. Single “a screw with a nut” system can fix both plates simultaneously; therefore, hopefully, the new implant system will be developed.

REFERENCES:
Lundqvist Eva, et al. Volar Locking Plate Compared With Combined Plating of AO Type C Distal Radius Fractures: A Randomized Controlled Study of 150 Cases. J Hand Surg Am. 2022 Sep;47(9):813-822.

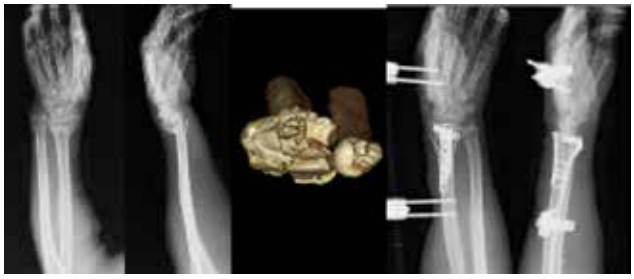


Figure 1: Double plating with Ex-fix

Figure 2: Double plating without Ex-Fix

AN AUDIT COMPARING DUAL ORTHOGERIATRIC MODELS AT ONE HOSPITAL

[1]Aickin, Himali; [1]Watkin-Brown, H; [1]Bell-Hardy, D; [2]Wright, M; [1]Walton, J

1. *Mana Awhi Older Peoples' Health, Te Toka Tumai Auckland City Hospital, Te Whatu Ora, 2 Park Road, Auckland, New Zealand*
2. *Orthopaedic Surgery, Te Toka Tumai Auckland City Hospital, Te Whatu Ora, Auckland, New Zealand*

INTRODUCTION:

Hip fractures are a significant health event for older adults with existence of varying models of orthogeriatric care[1]. This audit aims to compare two orthogeriatric models of care running concurrently at one institution.

MATERIALS & METHODS:

A retrospective audit of hip fracture patients admitted to our institution from June-July 2023 with 6-month follow-up completed. Patients admitted directly under the care of a geriatrician and specialist multidisciplinary team on Older Peoples' Health (OPH) ward with perioperative support by the orthopaedic service ('Direct OPH'), versus admission under orthopaedic service with OPH consult-liaison support with subsequent transfer at any time post-operatively to the OPH ward ('Consult-liaison then OPH'). Another group also admitted under orthopaedic with OPH consult-liaison model but not ultimately transferred to an OPH ward ('No OPH') was excluded from outcome analysis due to small patient numbers. Outcomes of Length of Stay (LOS), six-month readmissions and mortality rates were compared. Fisher's Exact Test was used to examine association between admission groups and readmissions within six months.

RESULTS:

Seventy patients total were admitted in the study period with a mean age of 84 ± 8.3 years. The majority (71%) were female, 96% non-Māori; 33% direct OPH admission and 67% consult-liaison model (Table 1). Six-month readmission rates were lower in the direct OPH admission group (83% with zero readmissions vs 61% consult-liaison group) (Figure 1); mortality rates were also marginally lower in direct OPH admission (26% vs 28%). Median LOS was one day longer in the direct OPH admission group (20 days vs 19 days). No results reached statistical significance.

DISCUSSION:

Direct admission to OPH demonstrated reduced readmission and mortality rates at six months. Statistical significance was not achieved due to small sample size. Further large audit is planned.

CONCLUSION:

Direct OPH admission under the care of a physician and specialist multidisciplinary team appears to reduce readmission rates at six-months. This translates into a significant economic benefit for the health system in reducing hospital bed-days by reduced rates of readmission.

REFERENCES:

Middleton M et al., Improving hip fracture outcomes with integrated orthogeriatric care: a comparison between two accepted orthogeriatric models. Age and Ageing 2017; 46: 465-470.

		Gender		Ethnicity	
	n (%)	Male	Female	Māori	Non-Māori
Direct OPH	23 (33)	4 (17)	19 (83)	2 (8)	21 (92)
Consult-liaison	36 (51)	13 (64)	23 (36)	0	36 (100)
No OPH	11 (16)	3(27)	8 (73)	1 (9)	10 (91)
Total	**70**	**20 (29)**	**50 (71)**	**3 (4)**	**67 (96)**

Table 1: Demographic characteristics

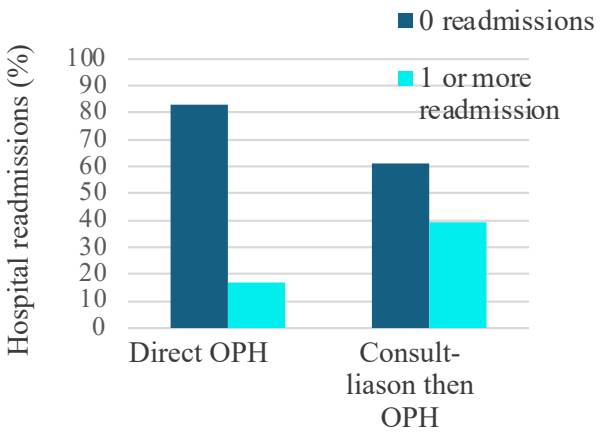


Figure 1: Readmission rates

ROLE OF DYNAMIC CONDYLAR SCREW IN FIXATION OF PERIPROSTHETIC OSTEOPOROTIC FEMUR FRACTURES

[1]Ravindraa T, [1]Narinder S, [1]Pavethiran P, [1]Gurmeet S
Department of Orthopedic and Traumatology, Hospital Seberang Jaya

INTRODUCTION:
Osteoporosis is a condition marked by diminished bone mass, degeneration of bone tissue, and the disruption of bone microarchitecture, resulting in compromised bone strength and heightened susceptibility to fractures.

We would like to report a case of periprosthetic distal third fracture of left femur in a 60-year-old male with previous history of proximal femur nailing over left femur more than 3 years ago.

REPORT:
A 60-year-old male sustained a periprosthetic distal third fracture of the left femur extending beyond the intramedullary nail fixation area post fall due to slippery floor. He was initially planned for removal of implant and distal femur lockplate of the femur. However, there were concerns regarding difficulty in removing the implant due to the archaic systems and risk of causing complex fractures due to osteoporotic bone. Ultimately, we decided to proceed with dynamic condylar screw as overlap plating with good purchase to fix the femoral condyles.

Preoperatively, plate placement, plate length and incision site were determined with the help of image intensifier. Initially, a 7 cm incision was made laterally to assess the fracture site, open reduction of the fracture done. Subsequently, 2 incisions measuring 5cm each were made anteriorly to enable the sliding of a 8 hole dynamic condylar screw with plate. Screw placement was planned carefully under I/I guidance through the distal nail holes and one screw done via a missed the nail technique. Post operatively, the fixation is stable.

DISCUSSION:
In the event of periprosthetic implant distal femur fractures in osteoporotic femur, a dynamic condylar screw plate can be placed to achieve stable fracture fixation while avoiding excessive soft tissue damage, morbidity from blood loss and long operation time.

CONCLUSION:
In the case of osteoporotic periprosthetic femur fractures, plating of the fracture with a dynamic condylar screw plate with minimally invasive approach can be a good treatment choice for the patients.

REFERENCES:
Vignesh Jayabalan Surulivel, Ganesan Ram Ganesan, & Ranjith Rajasekeran. (2015). Dynamic condylar screw versus supacondylar nail in the management of supracondylar fracture distal femur. International Surgery Journal, 373 –376. https://doi.org/10.18203/ 2349- 2902.isj20150502

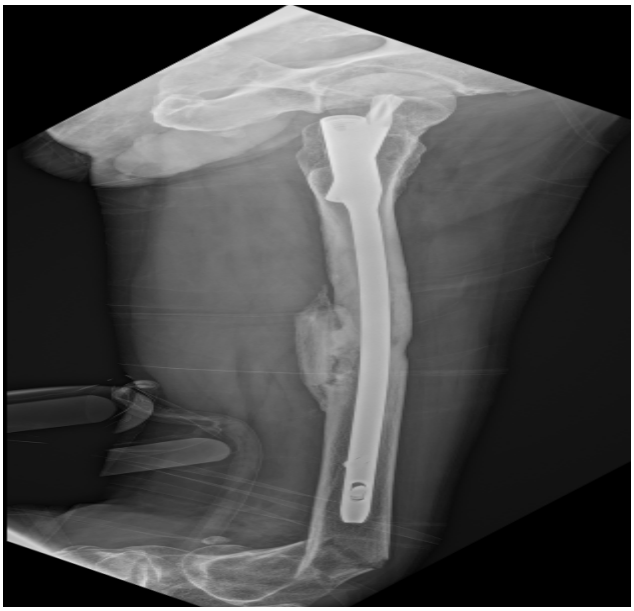


Figure 1: Preoperative: femur

Figure 2: Postoperative: femur

CLINICAL OUTCOMES OF DIRECT ANTERIOR APPROACH IN BIPOLAR HEMIARTHROPLASTY FOR NECK OF FEMUR FRACTURE: A CASE SERIES

[1]Shamsuddin MAF; [1]Ahmad Hanif KA; [1]Seri Masran M; [1]Che Hamzah F
1. Arthrosplasty Unit, Hospital Sultan Abdul Aziz Shah UPM, Serdang, Selangor

INTRODUCTION:
Bipolar hemiarthroplasty stands as a surgical treatment of choice for addressing neck of femur fractures in the elderly1. The direct anterior approach (DAA) has become preferred surgical option due to its ability to preserve hip abductors and short external rotators, thereby reducing the risk of post-operative dislocation2. We presented short-term clinical outcome following DAA in bipolar hemiarthroplasty for neck of femur fracture.

REPORT:
Four patients with average age of 71 years old, were selected for bipolar hemiarthroplasty via DAA after prerequisites for this approach are met and their post-surgery clinical outcome is evaluated. Three patients received cementless femoral stem, while one patient necessitated cemented femoral stem due to unforeseen osteoporotic bone intra-operatively.

All surgeries were performed in supine position using standard operating table. Image intensifier was utilised for all the cases. DAA offers less invasive inter-nervous plane while preserving the hip abductors and short external rotators. The blood loss was minimal, and no abduction pillow is required post-surgery. Assessing leg length and hip range of motion intraoperatively is more convenient and reliable in supine position.

Post operatively, their hip flexion able to achieve 90-degrees with good hip flexor control. Average Visual Analogue Scale (VAS) is 1. At two weeks post surgery, patients able to ambulate without aid with average of 120-degree hip flexion.

CONCLUSION:
Through accurate patient selection and appropriate operating equipment, DAA demonstrates improved short-term clinical outcomes in bipolar hemiarthroplasty for treating neck of femur fractures.

REFERENCES:
1. Langslet et al.(2014)."Cemented versus uncemented hemiarthroplasty for displaced femoral neck fractures: 5-year follow-up of a randomized trial. "Clin Orthop Relat Res,472(4),1291-9.doi:10.1007/s11999-013-3308-9
2. Realyvasquez et al.(2022)."The direct anterior approach to the hip: a useful tool in experienced hands or justoach?."Arthroplasty (London, England), 4(11),2.doi:10.1186 / s42836-021 00104-5.

Figure 1: Post-operation day two hip flexion

Figure 2: Hip flexion at two weeks post-surgery

TIMING OF SURGERY FOR ELDERLY HIP FRACTURES IN A SECONDARY HOSPITAL IN MALAYSIA

[1]Chew JE, [1]Keng JN, [1]Alan Ch'ng, [1]Tan SW, [1]Yap LC, [1]Muhd Fikri, [1]Hafizah, [1]Adilah, [1]Saviana, [2]Mohd Harris, [3]Chin CJ

1. *Department of Geriatric Medicine, Hospital Seberang Jaya, Penang, Malaysia*
2. *Department of Orthopedic, Hospital Seberang Jaya, Penang, Malaysia*
3. *Clinical Research Center, Hospital Seberang Jaya, Penang, Malaysia*

INTRODUCTION:
Various international guidelines recommend that geriatric patients with acute hip fractures should receive surgeries within 48 hours of admission for better outcomes.[1] This can be challenging for hospitals with limited resources. Surgeries for hip fractures in our center are often assumed to be delayed but there is no local data available to support this claim.

MATERIALS & METHODS:
This retrospective cohort study involved 125 patients aged 60 and above who were admitted to Hospital Seberang Jaya (Penang, Malaysia) for fragility hip fractures between 1st November 2022 and 31th December 2023. Data were collected from the medical records. 9 patients were excluded from the analysis as they were transferred to other hospitals.

RESULTS:
77 out of 116 (66.4%) patients underwent surgeries to fix the fractures. The median time from injuries to surgeries was 7 days (interquartile range of 7.8 days). Only 3 patients had the surgeries done within 48 hours of injuries. The rate of infections was lower among the group who received surgeries. There was no statistically significant difference in both inpatient mortality rate and complications between those who were operated within 1 week and those who were operated after 1 week.

DISCUSSIONS:
There was a considerable surgical delay in our study populations. Further analysis of factors influencing delay in surgeries in our center should be conducted. Surgeries were associated with lower rates of inpatient mortality and complications although only the difference in infection rate achieved statistical significance.

The small sample size is the limitation of this study.

CONCLUSIONS:
The median time from injuries to surgeries for elderly hip fractures in our center was 7 days. Efforts from various stakeholders are needed so that we could improve our service for elderly patients with hip fractures.

REFERENCES:
Mitchell PJ, Magaziner J, Costa M, et al. 2020. FFN Clinical Toolkit. Zurich: Fragility Fracture Network.

	Operated Group (N=77)	Conservative Group (N=39)	p-value
Inpatient Mortality	4 (5.2%)	5 (12.8%)	0.161*
Complications			
Thromboembolism	5 (6.5%)	3 (7.7%)	1.000*
Cardiac Events	5 (6.5%)	4 (10.3%)	0.482*
Infections	10 (13.0%)	12 (30.8%)	0.021**
Delirium	6 (7.8%)	7 (17.9%)	0.124*

Table 1: Inpatient Mortality and Complication Rates among Operated Group vs Conservative Group
**Fisher's Exact Test*
***Chi Square Test*

	Operated within 1 week (N=40)	Operated after 1 week (N=37)	p-value (Fisher's Exact Test)
Inpatient Mortality	3 (7.5%)	1 (2.7%)	0.616
Complications			
Thromboembolism	4 (10.0%)	1 (2.7%)	0.350
Cardiac Events	2 (5.0%)	3 (8.1%)	0.657
Infections	6 (15.0%)	4 (10.8%)	0.739
Delirium	4 (10.0%)	2 (5.4%)	0.676

Table 2: Inpatient Mortality and Complication Rates among those who had surgeries done within 1 week vs those who had surgeries after 1 week of injuries

FRACTURE LIAISON SERVICE IN A PANDEMIC: DID COVID-19 DISRUPT HIP FRACTURE CARE FOR OLDER PERSONS?

[1]Malarkodi Suppamutharwyam; [1]Elizabeth Chong Gar Mit
1. *Department of Geriatric Medicine, Hospital Kuala Lumpur, Malaysia*

INTRODUCTION:
The impact of the COVID-19 pandemic on fragility hip fractures remains unclear. This study compares the epidemiology of hip fractures and care services during the pandemic with non-pandemic periods.

MATERIALS & METHODS:
We conducted a retrospective analysis at Hospital Kuala Lumpur, comparing patients data for fragility hip fractures in older persons during the COVID-19 pandemic (2020-2021) to a non-pandemic period (2019, 2022, 2023). We analysed demographics and surgical management.

RESULTS:
Although demographics and fracture rates were similar in COVID (2020-2021) vs. non-COVID (2019, 2022, 2023) patients, the pandemic clearly impacted care delivery. While operative rates remained high (80% vs. 79%), a non- significant delay in time to surgery during COVID (7.6 vs. 6.8 days) was observed. Length of stay paradoxically decreased (12.8 vs. 14.4 days) in Covid years. Mobilization within 24 hours post-surgery significantly improved during COVID (59% vs. 44% non-COVID). However, a concerning trend emerged: infection rates doubled (4% vs. 9%), and overall complications rose significantly (43% vs. 63%) in COVID cohort.

DISCUSSIONS:
Despite a similar fracture incidence, the pandemic has had an impact on surgical care. FLS maintained high operation rates, indicating effective service adaptation. Non-significant surgical delays occurred due to limited operating room availability [1]. Paradoxically, the length of stay decreased due to bed scarcity, prompting earlier mobilization and discharge. While infection rates doubled, potentially due to COVID-19, overall complications also increased, possibly linked to extrapulmonary complications from COVID-19.

CONCLUSION:
FLS effectively maintained high operative rates for fragility hip fractures in older persons, despite facing challenges during pandemic. A concerning rise in infections and complications highlights the need for further research on optimizing care protocols during pandemic outbreak.

REFERENCES:
Onizuka N, Topor LN, Schroder LK, Switzer JA. Outcomes of COVID-19 Negative Hip Fracture Patients During the Acute and Subacute Pandemic. Geriatr Orthop Surg Rehabil. 2021 Mar 31;12:21514593211006692. doi: 10.1177/21514593211006692. PMID: 33868768; PMCID: PMC8012779.

Details	non-COVID N=242 (51%)	COVID N=235 (49%)	p-value
Mean Age	76.4 ± 8.3	76.7 ± 7.9	0.743
Co-morbid			
Yes	204 (84%)	173 (74%)	**0.004**
No	38 (16%)	62 (26%)	
Management			
Conservative	51 (21%)	48 (20%)	0.862
Operated	191 (79%)	187 (80%)	
Time to Surgery (Days)			
Mean (Days)	6.8 ± 4.6	7.6 ± 4.7	0.168
Median (Days)	6.0	6.0	
Mobilized 24H Post Op			
Yes	84 (44%)	110 (59%)	**0.019**
No	58 (30%)	27 (14%)	
Missing Data	49 (26%)	50 (27%)	
Usage of Analgesia			
PCM	161 (67%)	167 (89%)	**<0.001**
NSAIDs	24 (10%)	37 (20%)	0.402
Opioid	127 (53%)	118 (63%)	**<0.001**
Complication			
Yes	103 (43%)	149 (63%)	**<0.001**
No	126 (52%)	86 (37%)	
Missing Data	13 (5%)	0 (0%)	
Length of Stay (Days)			
Mean (Days)	14.4 ± 9.0	12.8 ± 7.4	0.120
Median (Days)	12.5	11.3	

Table 1: Orthogeriatric Services Through the Pandemic Lens: A Comparative Analysis

ANTICOAGULANT USE IN HIP FRACTURE PATIENTS IN BRUNEI DARUSSALAM

Tripathi Sanjeev, Yakob Abdul Hafiz, Pande Ketan
Orthopaedic Department, Raja Isteri Pengiran Anak Saleha Hospital, Brunei Darussalam

INTRODUCTION:
An estimated 15% of patients admitted with hip fracture are on some form of anticoagulant. The use of anticoagulant has been shown to increase time to surgery and length of hospital stay.[1,2] The objective of this study was to assess the number of hip fracture patients on various anticoagulants and to see its impact on time to surgery.

MATERIALS & METHODS:
In a retrospective study of hip fracture patients admitted to a tertiary hospital between 1 Jan 2022 and 31 Dec 2022, electronic medical records were reviewed to ascertain the number of patients on anticoagulants and their types. The delay in surgery was calculated for those patients on anticoagulants and those without.

RESULTS:
A total of 66 patients were admitted with hip fracture during the study period (M:F, 21:45) with mean±SD age of 74.4 ± 8.6 years. A total of 24 patients (36%) were on some form of anticoagulant including Aspirin (n=16), Clopidogrel (n=6), Warfarin (n=3), Fondaparinux (n=2) and Dabigatran (n=1). Four patients were taking dual medications. The median delay in surgery for the whole sample was 6 days (range 2-28 days) for varied reasons. There was no significant difference in the delay in patients on anticoagulants (7.9±4.8 days) compared to those not taking anticoagulants (6.6±4.4 days).

DISCUSSIONS:
The number of patients with hip fractures on anticoagulants in the present sample was more than that reported in literature. Though the number of patients on DOACs was lower than that reported in literature, increasing number of patients are now on DOACs in Brunei Darussalam. In this study with a small sample size, we did not find any impact of anticoagulant use on time to surgery.

CONCLUSION:
The results of the study provide insight into the use of anticoagulants in hip fracture patients in Brunei Darussalam. The local guidelines on management of anticoagulant use in hip fracture patients need to be revised based on available international literature and guidelines.

REFERENCES:
1. https://doi.org/10.1038/s41598-021-89077-8
2. http://doi.org/10.1530/EOR-22-0060

DISLOCATION FOLLOWING HIP REPLACEMENT SURGERY. HOSPITAL SEBERANG JAYA EXPERIENCE

[1]Fitri Nabilah F; [1]Aida NS; [1]Mohamed Harris A; [1]Abdul Aziz Y; [1]Gurmeet S
1. Orthopaedic Department ,Hospital Seberang Jaya, Pulau Pinang Malaysia

INTRODUCTION:
Total hip replacement is increasingly used in active, relatively healthy elderly patients with fractures of the femoral neck. Dislocation following total hip replacement is a nightmare for most orthopedic surgeon. How important hip precautions in this patient to prevent repeated dislocation is remain debatable.

MATERIALS & METHODS:
Our patient 1 month post total hip replacement presented with pain over left hip after performing Yoga. Patient was ambulating well without aid previously. Radiological examination revealed left total hip replacement dislocation. Patient was brought to operating room and under deep sedation close manipulative reduction was successful and hip was stable after reduction. Another patient who was well previously presented with dislocation following squatting at home. This patient hip was reduced at clinic setting.

RESULTS:
Post operatively no immobilizer applied and no brace applied. Patient was allowed to full weight as pre dislocation. Patient was advised on hip precautions.

DISCUSSIONS:
Total hip replacement for femoral neck fracture complicated with dislocation can be disastrous for surgeons and catastrophic for patients potentially giving rise to a persistently unstable hip and repeated surgery. Although our patient had one dislocation which was treated with close manipulative reduction under sedation. Later during follow up we were amaze with activity level of this patients.

CONCLUSION:
Dislocation is a relevant issue given that many patients who sustain femoral neck fractures have some degree of cognitive impairment, limited mobility, and/or gait instability. However this should not stop us from restricting patient daily activity.

Figure 1: Radiograph image of hip dislocation following hip replacement

Figure 2: Clinical image patient ambulating during follow up

THERE IS FREQUENTLY MORE TO BE LEARNED FROM THE UNEXPECTED WITH FRAGILITY HIP FRACTURE

[1]Fitri Nabilah F; [1]Aida NS; [1]Mohamed Harris A; [1]Abdul Aziz Y; [1]Gurmeet S
1. Orthopaedic Department ,Hospital Seberang Jaya,Pulau Pinang Malaysia

INTRODUCTION:
Mortality is one of the complications in geriatric patients with hip fractures following surgery. Post operative delirium is a postoperative cognitive disturbance defined by abrupt and variable impairment in attention and awareness, with reported incidences varying from 4.7 to 74%.

MATERIALS & METHODS:
Our patient who is a 76 years old lady presented with fragility left neck of femur fracture. Upon first admission patient surgery was postponed in view of fungal infection at surgical site. After two months patient was scheduled for bipolar hemiarthroplasty. Surgery was uneventful. No immediate post op complication.

RESULTS:
Patient was scheduled for Ct brain which showed no infarct or bleeding. All patient medication was reviewed. Tramadol was stop. During this phase patient was closely monitored for further deterioration of GCS.

DISCUSSIONS:
Early identification of patients at risk as well as implementation of prophylactic measures to reduce the frequency of post operative delirium is extremely desirable. The absolute mortality risk within one year after a fragility fracture occurring at hip significantly high.

CONCLUSION:
Postoperative delirium in geriatric patients with hip fractures is significantly related to significant mortality as well as poor functional and cognitive recovery. The concrete mechanism of post operative delirium is still elusive, and early identification of patients is crucial.

Figure 1: Radiograph image of patient with hip fragility fracture

Figure 2: Radiograph image of patient with hip fragility fracture postoperative

COMPLICATION PROFILE OF HIP FRACTURE PATIENTS TREATED WITH ARTHROPLASTY

[1]Goh, EL; [2]Png ME; [1]Metcalfe D; [3]Cook J; [1]Costa ML

1. *Oxford Trauma and Emergency Care, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom*
2. *Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, United Kingdom*
3. *Oxford Clinical Trials Research Unit, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom*

INTRODUCTION:
Older adults with a hip fracture are at high risk of experiencing complications after surgery. There is a little information available on the complication profile of routinely used orthopaedic implants in clinical practice. This study aims to describe and compare the complication risks between hip hemiarthroplasty (HHA) and total hip arthroplasty (THA).

MATERIALS & METHODS:
The World Hip Trauma Evaluation (WHiTE) study is a multi-centre, prospective cohort study that enrolled patients age ≥60 years who received operative treatment for their hip fracture. Patients were prospectively followed up for 120 days after surgery. We report the cumulative incidence of each complication and comparisons between the study groups.

RESULTS:
A total of 9,203 patients who had a HHA (*n* = 7,148) or THA (*n* = 2,055) were included in the analysis. For surgery-specific complications, THA had higher risks of prosthesis dislocation (HR: 1.41); peri-prosthetic fracture (HR: 1.33); and revision surgery for dislocation and peri-prosthetic fracture (HR: 1.18); but lower risks of surgical site infection (HR: 0.80) and re- operation for infection (HR: 0.76) compared to HHA. For general complications, THA had higher risks of deep vein thrombosis (HR: 1.93); and pulmonary embolism (HR: 1.65); but lower risks of acute kidney injury (HR: 0.55); blood transfusion (HR: 0.52); cerebrovascular accident (HR: 0.27); lower respiratory tract infection (HR: 0.42); myocardial infarction (HR: 0.29); and urinary tract infection (HR: 0.38) compared to HHA.

DISCUSSION:
THA was associated with higher risks of surgery-specific complications compared to HHA. These findings are consistent with the latest observational and trial data, thereby supporting a judicious approach towards the use of THA in patients with hip fractures. The THA group had a lower risk of general complications, which can be attributed to the healthier baseline state of this population. The elevated risk of venous thromboembolism is a new and important observation, warranting further investigation to understand potential risk factors that may be implicated.

CONCLUSION:
THA confers a higher risk of surgery-specific complications compared to HHA. This should be weighed up against the patient-specific benefits that THA may offer.

REFERENCES:
1. Goh EL et al. Complications following hip fracture: Results from the World Hip Trauma Evaluation cohort study. Injury. 2020.
2. Hansson S et al. More hip complications after total hip arthroplasty than after hemi-arthroplasty as hip fracture treatment: analysis of 5,815 matched pairs in the Swedish Hip Arthroplasty Register. Acta Orthop. 2020.

BIOELECTRICAL IMPEDANCE VECTOR ANALYSIS IN ELDERLY HIP FRACTURE PATIENTS

[1] Seung-Kyu Lim; [2] Jae-Young Lim

1. *Department of Rehabilitation medicine, Soonchunhyang University Cheonan Hospital, Soonchunhyang University College of Medicine, 31 Suncheonhyang 6-gil, Cheonan, Republic of Korea*
2. *Department of Rehabilitation Medicine, Seoul National University Bundang Hospital, Seoul National University College of Medicine, 82 Gumi-ro 173beon-gil, Seongnam, Republic of Korea*

INTRODUCTION:
Hip fracture patients commonly experience interconnected geriatric nutritional issues like undernutrition, sarcopenia, and frailty. Interventions targeting these factors are crucial for improving postoperative outcomes in hip fracture patients. Bioelectrical impedance vector analysis (BIVA) offers an assessment of body composition and hydration status, serving as a valuable tool to guide appropriate interventions. This study aims to assess body composition using BIVA in older adults with hip fractures and compare the findings with those of reference populations.

MATERIALS & METHODS:
This cross-sectional study included 103 hip fracture surgery patients aged 65 years and older. Bioelectrical impedance assessment was conducted, and resistance (R) and reactance (Xc) data were analyzed based on height and plotted on RXc graphs. The data were compared with reference population groups, including age- and BMI-matched South Korean and foreign populations, as well as the South Korean young population.

RESULTS:
The BIVA confidence ellipse indicated that the men and women were significantly different from reference population groups ($P < 0.001$), with a noticeable reduced Xc component. Only a small proportion of hip fracture men (n=2) and women (n=10) without sarcopenia located within the 75% tolerance ellipse compared to community-dwelling South Korean older adults without hip fracture. The majority of hip fracture men and women were positioned outside the 95% tolerance ellipse, notably in the right upper and lower quadrants, indicating low body cell mass or cachexia. Similar distribution patterns outside the 95% tolerance ellipse, particularly in the right lower quadrant, were observed when compared with other reference groups in both men and women.

DISCUSSIONS:
The significant reduction in the Xc component and the BIVA pattern located outside the upper or lower right quadrants, indicating lower muscle composition or cachectic condition in older hip fracture patients, suggests a frail and malnourished state among this population.

CONCLUSION:
Hip fracture patients exhibit a distinct BIVA pattern different from community-dwelling adults without hip fracture. BIVA is an effective method for screening and early identification of body composition alterations in older hip fracture patients. It can lead to appropriate multidisciplinary interventions, including rehabilitation and nutrition.

REFERENCES:
Slee A et al., Bioelectrical impedance vector analysis, phase-angle assessment and relationship with malnutrition risk in a cohort of frail older hospital patients in the United Kingdom. Nutrition. 2015 Jan;31(1):132-7.

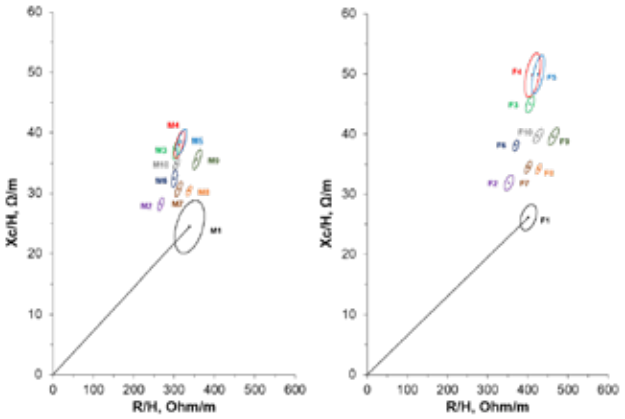


Figure 1: Legend. BIVA confidence ellipses

MULTIDISCIPLINARY APPROACH IN THYROTOXICOSIS PATIENT WITH FRAGILITY HIP FRACTURE, A CASE REPORT

[1]KT Foo; [2]YY Ho; [1]VA Jacob
1. *Orthopaedic Department, Hospital Tengku Ampuan Afzan, Jalan Tanah Putih, Kuantan, Pahang, Malaysia*
2. *Geriatric Department, Hospital Tengku Ampuan Afzan, Jalan Tanah Putih, Kuantan, Pahang, Malaysia*

INTRODUCTION:
Geriatric hip fractures are commonly associated with significant morbidity, mortality, and costs. Any delayed surgery will affect postoperative outcome. Thus, most institutions recommend that operations are conducted as soon as possible to achieve the most favorable outcome. We present a case of thyrotoxicosis patient who suffered hip fracture, co-managed by multidiscipline teams to provide optimum treatment.

REPORT:
Our patient is a 71-year-old lady, who presented to us 3 days after she fell down. She complained of inability to ambulate due to severe pain over right hip. Examination showed tenderness over right hip joint with decreased range of movement with neck swelling that moved with deglutination. Unfortunately, the patient has hyperthyroid symptoms prior to her trauma. Radiological examination showed right neck of femur fracture. She was admitted referred to surgical, anesthetics and geriatric colleagues for optimization of her thyrotoxicosis and surgery. Her TSH level was 0.005 mIU/L, with elevated T4 level of 75.5µg/dL. With anti-thyroid medications, she successfully underwent bipolar hemiarthroplasty surgery within 72 hours of admission, under regional anesthesia to reduce the risk of thyroid storm. However, her postoperative recovery was complicated with hospital-acquired pneumonia and partial anterior cerebral infarction, leading to prolonged hospital stay. Nevertheless, the patient made a full recovery with geriatric and rehabilitation team care and discharged home well.

DISCUSSION:
Hip fractures in the elderly constitute a major source of disability and diminished quality of life. The effect of delayed surgery for various reasons will affect postoperative outcomes. In this patient, the limiting factor was optimization of thyrotoxicosis and precautions taken to reduce risk of thyroid storm. Literatures recommended postponement of elective surgery in thyrotoxicosis patients, up to 18 months, to normalize thyroid hormones. Discussions between various specialties were done in order to devise a management plan with an acceptable risk for the patient.

CONCLUSION:
Geriatric hip fractures patients often presented with multiple co-morbidities which usually will impedes the plan for early surgical intervention and rehabilitation. A multi-disciplinary co-management is crucial to ensure better postoperative outcomes for affected patients.

REFERENCES:
Terefe M, Belay Bizuneh Y, Addisu Nigatu, Yaregal Melesse D. Perioperative management of the thyrotoxic patients: A systematic review. Ann Med Surg (Lond). 2022

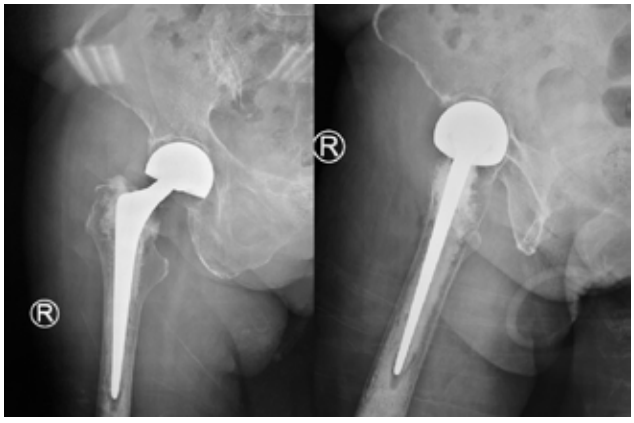


Figure 1: Right hip X-ray showing bipolar hemiarthroplasty

SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF PATIENTS ADMITTED WITH INCIDENT HIP FRACTURE TO A TERTIARY HEALTHCARE CENTER IN SOUTHERN, SRI LANKA

[1]Dias H, [1]Rathnayake N, [1]Abeygunasekara T, [2]Lekamwasam S
1. *Department of Nursing, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka*
2. *Department of Medicine, Faculty of Medicine, University of Ruhuna, Sri Lanka*

INTRODUCTION:
The rapid increase of old people in Asia would lead to an increased incidence of hip fracture (HF) in the region. Socio-demographic and clinical characteristics of HF patients are paramount in identifying those with a high HF risk. This study assessed selected socio- demographic and clinical characteristics of HF patients admitted to Teaching Hospital Karapitiya (THK).

MATERIALS & METHODS:
Socio-demographic and clinical characteristics of 100 consecutive patients with incident HF admitted in 2023 were assessed using an investigator administered questionnaire.

RESULTS:
The majority (70%) of HF patients were female and married (76%) and mean (SD) age was 74.5 (11.8) years. Two third (67%) of participants were currently unemployed while 69% were living with children. The average monthly family income was 90 USD and 16% of the patients were below the National poverty line (USD 52). Majority (84) of patients had intra- capsular non displaced HF and most of them (60) were on the left side. Most of the patients (97) were admitted to hospital within 24 hours of the event. Nearly two thirds had normal physical activities according to the ASA grading. Details related to fall and in hospital care are given in the table.

DISCUSSIONS:
The proportion of HF patients who had prior fragility fracture was low. Although majority of patients were admitted within 24 hours following the accident, a substantial time gap was observed between admission and surgery. Also the proportion of patients who underwent surgery was relatively low. The lack of theater time was a major reason for operation delay.

CONCLUSION:
More theater facilities should be provided for HF patients to undergo timely surgery.

Table- Clinical characteristics of patients with HF (N=100)

History of previous fractures	
Forearm	13%
Vertebrae	10%
Lower limbs	06%
Types of falls	
Indoor falls	65%
Out-door falls	33%
Public places	02%
Time of fall occur	
Day time	61%
Night time	39%
Causes led to falls	
Slippery floor	21%
Difficulty in negotiating stairway	18%
Falls from bed while sleep	07%
Management options	
Surgery	84%
Conservative management	16%
Reasons for conservative management	
Limited operating theatre time	10%
Comorbidity	04%
Older age	02%
Types of surgeries performed	
Austin-Moore Dynamic Hip Screw fixation	58%
Proximal femoral nail fixation	33%
Bipolar modular hemi arthroplasty	09%
Type of anesthesia	
Spinal anesthesia	63%
General anesthesia	10%
Time since admission to surgery	
<24 hours	01%
48 hours	17%
>72 hours	66%
Pre fracture mobility	
Walk without aids	75%
Walking with one assistive device	24 %
Walking with two assistive devices	01%

PREVALENCE AND FACTORS ASSOCIATED WITH SARCOPENIA IN HIP FRACTURE PATIENTS ADMITTED TO TEACHING HOSPITAL KARAPITIYA, SRI LANKA

[1]Dias H, [1]Rathnayake N, [1]Abeygunasekara T, [2]Lekamwasam S
1. *Department of Nursing, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka,*
2. *Department of Medicine, Faculty of Medicine, University of Ruhuna, Sri Lanka*

INTRODUCTION:
Sarcopenia is a well-known risk factor of falls and fractures among older adults. This study assessed the prevalence and factors that are associated with sarcopenia in hip fracture (HF) patients admitted to Teaching Hospital Karapitiya (THK), Sri Lanka.

MATERIALS & METHODS:
Consecutive 100 patients, aged 40 years or more, with incident HF and admitted between May and December 2023 were studied. Sarcopenia on admission was assessed using the validated SARC-F questionnaire with cutoff value of 4.

RESULTS:
Of 100 patients, 70 were female while 76 were married. The mean age (SD) was 74.5 (11.9) years. Thirty two (6 men and 26 women) had high risk of sarcopenia at the time of admission. Time since menopause ($p=0.013$), pre-fracture mobility status ($p=0.027$), history of previous fracture ($p<0.001$), hand grip strength ($p= 0.012$) and cognitive function ($p=0.003$) showed significant associations with sarcopenia risk. Age, gender, civil status, Body Mass Index and American Society of Anesthesiologists' score did not show significant associations with the risk of sarcopenia ($p>0.05$).

DISCUSSIONS:
The prevalence of sarcopenia we observed is concordant with previous studies which reported 11%- 76% prevalence[1]. This variation could partly be due to the different diagnostic criteria used and the variation of patient characteristics. Concordant to previous studies, we observed, that the time since menopause, pre-fracture mobility status, history of previous fracture, hand grip strength and cognitive function to be significant associations with pre-fracture sarcopenia risk[2]. This emphasizes the importance of maintaining overall physical and mental functions in old age and periodic screening for sarcopenia using a reliable tool.

CONCLUSION:
Sarcopenia is prevalent among HF patients and they should be screened for the presence of sarcopenia and appropriate steps should be taken to prevent further deterioration of muscle functions.

REFERENCES:
1. Inoue T, Maeda K, Nagano A, Shimizu A, Ueshima J, Murotani K, Sato K, Tsubaki A. Undernutrition, Sarcopenia, and Frailty in Fragility Hip Fracture: Advanced Strategies for Improving Clinical Outcomes. Nutrients. 2020 Dec;12(12):3743.
2. Ho AW, Lee MM, Chan EW, Ng HM, Lee CW, Ng WS, Wong SH. Prevalence of pre-sarcopenia and sarcopenia in Hong Kong Chinese geriatric patients with hip fracture and its correlation with different factors. Hong Kong Med J. 2016 Feb 1;22(1):23-9.

A MULTIDISCIPLINARY APPROACH TO REDUCE LENGTH OF STAY (LOS) IN OLDER ADULTS WITH HIP FRACTURE: AN EVIDENCE-BASED IMPLEMENTATION

[1]Wu, Xueting [2]Murphy, Diarmuid; [3]Wong, Ling Ling Beatrix
1. *Nursing Department, National University Hospital, Singapore*
2. *Department of Orthopedic Surgery, National University Hospital, Singapore*
3. *Division of Geriatric Medicine, Department of Medicine, National University Hospital, Singapore.*

INTRODUCTION:
Hip fracture incidence in Singapore of persons aged 50 years and above will increase 3.5 times between 2018 and 2050.[1] Prolonged hospital stay has a direct impact on poor outcomes and healthcare costs in older adults with hip fracture.[2,3] The mean length of stay (LOS) for such patients in Singapore ranges from 10 to 19 days.[4]Mean LOS within the National University Hospital, Singapore in 2022 was 11.7 days. This project aimed to implement a multidisciplinary approach including a fast-track transfer pathway in older adults with hip fractures.

MATERIALS & METHODS:
The multidisciplinary evidence-based quality improvement (EBQI) project was implemented from July 2023 on patients aged ≥ 65 years with hip fractures admitted under orthopedic surgery. The Plan-Do-Study-Act (PDSA) method was utilized. This multidisciplinary EBQI comprises multiple interventions *(Figure 1)* and a fast- track workflow to a dedicated rehabilitation facility for suitable patients on top of the usual care delivered by the Orthogeriatric team. Outcome measures included mean LOS and cost.

RESULTS:
A total of 143 patients (mean age 82 years) were admitted with hip fractures from July to November 2023 *(Figure2)*. The mean LOS of these patients was 10.2 days compared to the mean LOS of 11.7 days in year 2022. This resulted in a 1.5-day reduction in mean LOS and cost savings of SGD $404,761.50 over this study period (based on an average daily hospital bill of SGD $1,887 per day) as compared to usual orthogeriatric care only. Out of the 143 patients, 49 patients (34.3%) were deemed suitable and enrolled into the fast-track pathway. The mean LOS of the patients on the fast-track pathway was 7.2 days Whereas, the patients who were not on the pathway was 11.7 days.

CONCLUSION:
Orthogeriatric care model enhanced with the integration of coordinated multidisciplinary interventions and fast-track pathway has resulted in shorter length of stay in an acute hospital and reduction in cost of hospital stay.

Root Cause	Intervention
No visibility of CH/ TCF beds	Community Hospital Beds Dashboard: indicating bed availability at community hospital twice per week
No one coordinating discharge planning	Orthogeriatric nurses explore Discharge planning from Day 1 of OrtheGeriatric Assessment
Scattered information regarding discharge planning	Utilise a discharge planning template to consolidate final discharge plans
Therapists taking time to commit to rehab plans/ goals	PTOT to document rehab goals and discharge destination by POD1
Patient/Family Unaware of huge change in care needs after hip fracture	Provide patient/family education on potential change in functional status and need for longterm caregiver by using a standardise communication template.
No manpower (resulting in delay in facility's screening and long wait time for CH/TCF)	Develop a workflow and criteria for Fast track SLH transfer

Figure 1: Interventions

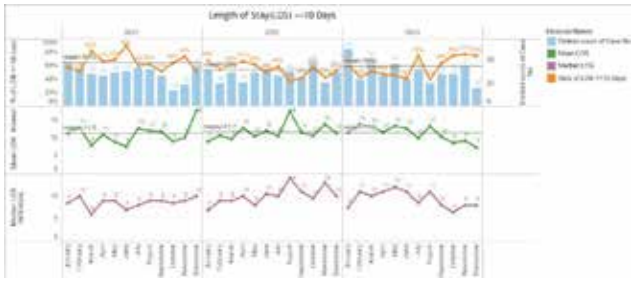


Figure 2: Length of stay in acute hospital

ENHANCING ORTHOGERIATRIC CARE: A COMPREHENSIVE APPROACH IN EMERGENCY AND PERIOPERATIVE IN-PATIENT SETTINGS

Nizar, Azmeena; Islam, Babar; Hooda, Khairunnissa; Amin, Alvina
Division of Nursing Services, The Aga Khan University Hospital, Karachi, Pakistan

INTRODUCTION:
This abstract presents a comprehensive approach to orthogeriatric care focusing on emergency and perioperative settings, aiming to improve outcomes for elderly patients with fragility fractures.

MATERIALS & METHODS:
Data were gathered from literature reviews, expert opinions, and evidence-based guidelines to develop a framework for enhancing orthogeriatric care.

RESULTS:
Key findings highlight the importance of timely assessment, multidisciplinary collaboration, evidence-based interventions, and patient-centered care in optimizing outcomes for fragility fracture patients.

DISCUSSIONS:
Discussions revolve around challenges in timely presentation to the emergency department, critical steps in emergency care, preoperative medical assessment, factors impacting outcomes, guiding principles affecting crises, and the significance of safe patient care.

CONCLUSION:
A multifaceted approach to orthogeriatric care, encompassing preoperative, intraoperative, and postoperative phases, guided by evidence-based practices and led by Orth geriatricians, promises improved outcomes and patient satisfaction.

REFERENCES:
1. Hertz, K., & Santy-Tomlinson, J. (Eds.). (2019). Fragility fracture nursing: Holistic care and management of the orthogeriatric patient. Springer Nature.
2. Sarkies, M. N., et al. (2023). Perioperative interventions to improve early mobilisation and physical function after hip fracture: a systematic review and meta-analysis. Age and Ageing, 52(8).

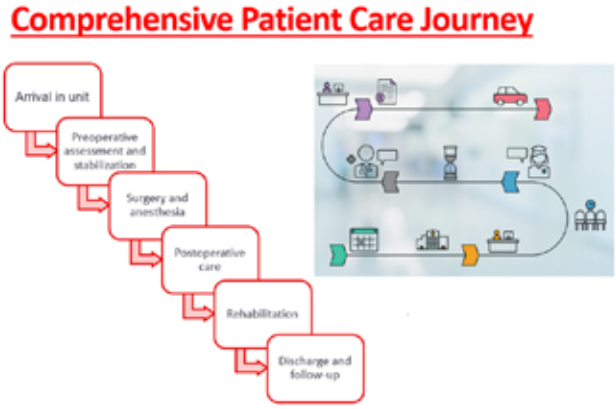


Figure 1: Depicts the comprehensive patient care journey from admission to follow-up, emphasizing the critical steps in emergency and perioperative management.

BILATERAL CEMENTED BIPOLAR HEMIARTHROPLASTY VIA DIRECT ANTERIOR APPROACH IN BILATERAL NECK OF FEMUR FRACTURES: A CASE REPORT

[1]Shamsuddin MAF; [1]Ahmad Hanif KA; [1]Seri Masran M; [1]Che Hamzah F
1. Arthrosplasty Unit, Hospital Sultan Abdul Aziz Shah UPM, Serdang, Selangor

INTRODUCTION:
Bipolar hemiarthroplasty stands as a surgical treatment of choice for addressing neck of femur fractures in the elderly[1]. The direct anterior approach (DAA) has become preferred surgical option due to its ability to preserve hip abductors and short external rotators, thereby reducing the risk of post-operative dislocation[2]. We present our experience in dealing with bilateral neck of femur fractures that were treated with bilateral bipolar hemiarthroplasty via DAA.

REPORT:
A 73 year-old healthy gentleman was diagnosed with bilateral neck of femur fractures and 1st left metacarpal bone fracture following a motor vehicle accident. He subsequently underwent bilateral cemented bipolar hemiarthroplasty.

Patient was positioned in supine on a standard operating table. Surface landmark identified using ASIS and tip of GT. Left hip procedure was a bit challenging as the is an avulsion fracture of the lesser trochanter. The bilateral proximal femur were adequately delivered via a figure of 4 position. Femoral canal preparation and cementation was done without difficulty. The left lesser trochanter was fixed with screw fixation in via same exposure. Intra-aoperatively, we able to use image intensifier to check implant placement and limb length assessment can be checked acurately. Post surgery, patient is able to sit by the edge of the bed by day three and able to walk with walking frame by day five. At two weeks post surgery, he was ambulating well with walking frame.

CONCLUSION:
DAA is doable in a patient with bilateral neck of femur fracture as it is relatively requiring less time for repositioning, provide adequate exposure and patient can achieve early post- operative full weight bearing ambulation and rehabilitation.

REFERENCES:
1. Langslet et al.(2014).”Cemented versus uncemented hemiarthroplasty for displaced femoral neck fractures: 5-year follow-up of a randomized trial. “Clin Orthop Relat Res,472(4),1291- 9.doi:10.1007/s11999-013-3308-9
2. Realyvasquez et al.(2022).”The direct anterior approach to the hip:a useful tool in experienced hands or just another approach?.”Arthroplasty(London,England),4(11),2.doi:10.1186/s42836-021 00104-5.


Figure 1: Patient position, skin marking and delivering of the proximal femur

Figure 2: Plain radiograph post surgery

TAILORING OSTEOPOROTIC HIP FRACTURE FIXATION FOR PARKINSON'S PATIENTS: A PIRIFORMIS-PRESERVING POSTERIOR APPROACH

Kathiravan.M[1]; Khairil Anwar A.H[1]; Siti Munira S.M[1], Fahrudin C.H[1]
1. *Arthroplasty Unit, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia*

INTRODUCTION:
Parkinson's patients face a heightened risk of hip fractures due to an increased likelihood of falls and lower bone mineral density (BMD)[1]. Hemiarthroplasty for femoral neck fractures has a dislocation rate of 3%-5% in which the strongest risk factor is the use of posterior approach (PA)[1,2]. The Parkinson's disease group exhibited a significantly elevated dislocation rate of around 8% following hemiarthroplasty in comparison to the control group[1].

MATERIALS & METHODS:
We report a case of 71-year-old female premorbidly home ambulator with underlying Parkinson's disease and osteoporosis presented with Garden IV left neck of femur fracture. Patient underwent left cemented bipolar hemiarthroplasty via piriformis-preserving posterior approach (PPPA). Left hip was significantly stable intraoperatively.

RESULTS:
Patient able to ambulate with walking frame on day 2 post surgery. At 2 month follow up, patient able to demonstrate a sitting position in hip internal rotation without dislocation.

DISCUSSIONS:
The traditional PA and PPPA were both performed in lateral decubitus position, however PPPA method had a specific variation where the piriformis tendon was preserved via an L- shaped incision running just below the piriformis tendon and extending inferiorly along the femoral neck[2]. The piriformis tendon plays a crucial role in offering posterior stability, particularly in individuals with weakened muscle strength and reduced soft tissue tension. Viberg et al. showed that patients undergoing PPPA in hemiarthroplasty experienced 50% decrease in dislocations, reoperations, and overall complications compared to those undergoing the standard PA[2].

CONCLUSION:
The PPPA used in hemiarthroplasty shows promising potential for a significant decrease in dislocation rates and earlier ambulation especially in individuals with Parkinson's disease.

REFERENCES:
1. Hsiue PP et al. Effect of Parkinson's Disease on Hemiarthroplasty Outcomes After Femoral Neck Fractures. *J Arthroplasty*. 2019;34(8):1695-1699.e1.
2. Viberg B, Kristensen EQ, Gaarsdal T, et al. A piriformis-preserving posterior approach reduces dislocation rate of the hemiarthroplasty in patients with femoral neck fracture. *Injury*. 2023;54(6):1727- 1732.

Figure 1: X-ray Pelvis AP showing - Left neck of femur fracture (Garden Classification IV) and bpne mineral density report

Figure 2: Post operative X-Ray - post cemented bipolar hemiarthrosplasty (Left and middle) and post operative 2 month patient able to perform full internal rotation (Right)

ATYPICAL FEMUR FRACTURE: A COMPLICATION OF LONG TERM BIPHOSPHANATE THERAPY

[1]Lim JY, [1]Ong SL, [1]Divenno J, [1]Lee MF
1. Orthopaedic Department, Hospital Sarikei, Sarawak

INTRODUCTION:
Atypical femoral fractures (AFF) are a rare complication of long-term biphosphanate use for osteoporosis. These fractures typically occur in the subtrochanteric region and diaphysis of femur and often preceded by minimal stress.

REPORT:
A 75-year-old lady presented to the emergency department with sudden onset of left thigh pain following a trivial fall from standing height. She denied any significant trauma or prior injuries. Her medical history was significant for osteoporosis diagnosed 8 years prior, for which she had been taking alendronate.
Physical examination revealed significant tenderness and swelling left thigh. X-rays showed a transverse, minimally displaced fracture in the midshaft left femur. Atypical fractures were noted, including uneven cortex thickening (Figures 1&2).

Based on the clinical presentation, imaging findings, and history of long term biphosphanate use, an AFF was diagnosed. The patient underwent closed reduction and internal fixation with an intramedullary nail to stabilize the fracture (Figures 3&4). Her biphosphanate therapy was discontinued due to increased risk for further fracture.

DISCUSION:
AFF is a serious complication associated with biphosphanate use. Early diagnosis is crucial as delayed treatment can lead to complications like nonunion or refracture. While surgery is often required for stabilization, cephalomedullary nailing is a standard treatment and gives the most favorable loading properties. Additionally, discontinuing biphosphanate therapy is also essential to prevent further fracture.

CONCLUSION:
This case report emphasized the importance of recognizing AFF in patients on long term biphosphanate therapy, even with minimal trauma. Proper counselling should be performed prior to biphosphanate initiation.

REFERENCES:
Rudran, B., Super, J., Jandoo, R., Babu, V., Nathan, S., Ibrahim, E., & Wiik, A. V. (2021). Current concepts in the management of bisphosphonate associated atypical femoral fractures. *World Journal of Orthopedics*, *12*(9), 660–671. https://doi.org/10.5312/wjo.v12.i9.660

Figure 1 & 2: Plain radiographs of the atypical femoral fracture

Figure 3 & 4: Plain radiographs after femoral fixation.

APPLICATION OF CEMENT-AUGMENTED PEDICLE SCREW IN ELDERLY WITH OSTEOPOROTIC VERTEBRAL FRACTURE

[1]Aishah, NZA
1. *Department of Orthopedic, SASMEC@IIUM, Jalan Sultan Haji Ahmad Shah Kuantan, Pahang*

INTRODUCTION:
Osteoporotic fracture in men occur 10 years' late compare to women in view of higher peak bone mass. The aging and osteoporotic spine represents a challenge for achieving fixation and stability. We are sharing our experience in managing case of elderly male with osteoporotic vertebral fracture using minimally invasive spinal surgery.

CASE REPORT:
A 79 years old man, premorbidly ADL independent with underlying hypertension and ischemic heart disease presented to our center, complaint of back pain after fell from ladder at his orchard. Fortunately, there was no neurological deficit despite severe back pain. Radiographic imaging revealed unstable burst fracture of T11 involving more than 50% of vertebral body height with increased interpedicular distance. There were also generative bone changes with diffuse osteopenia on the background. CT scan confirmed no retropulsion fragment into the canal.
Surgical management was performed with posterior decompression and transpedicular screw insertion T9, T10, T12 and L1 with posterolateral fusion. The screws purchase augment with bone cement. Post operatively, we were able to regain the T11 body height with adequate screw hold to all three columns. Patient was discharged well, able to walk with walking frame and still under periodic follow up.

DISCUSSIONS:
Main issue in fixation of osteoporotic vertebral fracture is low bone density thus higher risk for pedicle screws loosening, back out and fixation failure. Multiple level fixation, usage of fenestrated pedicle screws, augmentation with bone cement, utilization of hydroxyapatite-coated screws, expandable screws, and larger diameter screws has been proposed to prevent nonunion and failure of
fixation.

CONCLUSION:
Posterior spinal instrumented fusion with cement augmentation is a good option to tackle burst fracture in osteoporotic patient to prevent possible failure.

REFERENCES:
1. Nikolaou, S., et al. (2023). Osteoporotic Burst Fracture in a Young Male Adult as First Presentation of a Rare PLS3 Mutation: A Case Report. Cureus, 15(12).

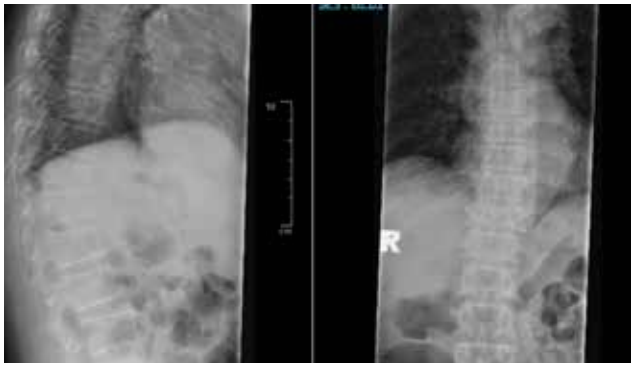


Figure 1: Burst fracture T11 with reduce of vertebral body height more than 50 % and increased of interpedicular distance

Figure 2: Post-operative imaging after posterolateral fusion of T9 till L1 with cement augmentation

ELEVATING CARE: PERCUTANEOUS KYPHOPLASTY AS THE PREMIER CHOICE FOR OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURES (OVCF)

[1]Kathiravan M, Fadzrul Abbas M.R; Lim T.S, Mohd Hezery. H[1]
Spine Unit, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia

INTRODUCTION:
Osteoporosis is characterized by an irregularity in bone metabolism and the deterioration of bone microarchitecture resulting in heightened bone fragility fractures. Osteoporotic vertebral compression fractures (OVCF) are spinal fractures that occur following minor trauma due to the bone loss induced by osteoporosis.

MATERIALS & METHODS:
We present a 81 years old female who presented with lower back pain after sustaining fall at home due to slippery floor. Post trauma patient was unable to ambulate due to pain. Patient sustained compression fracture over Lumbar-1 (L1). Patient underwent L1 percutaneous kyphoplasty and minimal invasive spine posterior instrumentation over Thoracic-12 till Lumbar-2.

RESULTS:
Post kyphoplasty, vertebral height was restored and stabilized with posterior instrumentation. The patient utilized a Jewett brace postoperatively and achieved ambulation by day 4, indicative of the procedure's efficacy in promoting rapid recovery and functional rehabilitation.

Figure 1: Plain radiograph showing L1 verterbral compression fractures

DISCUSSIONS:
Traditional treatments for OVCFs include bed rest, analgesia, braces, and physical therapy. However, these traditional therapies negatively affect both muscle strength and bone mass and can lead to serious complications. Percutaneous kyphoplasty (PKP) is the current minimally invasive surgical treatment commonly used to treat OVCF. This technique uses percutaneous puncture and balloon expansion to reposition the collapsed vertebral body and stabilize the diseased vertebral body by bone cement infusion to reduce the pain associated with the fracture. It has the advantages of short surgical time, little trauma, and early postoperative bed mobility, and provides rapid relief of back pain in a short period of time.

CONCLUSION:
PKP, a current mainstream minimally invasive surgical approach, has proven efficacy in patients with OVCFs. Age, gender, cause of injury, and standardized postoperative anti- osteoporosis treatment may be factors affecting the long-term outcome 10 years after surgery.

REFERENCES:
Zhan, Z*et al.* Clinical efficacy and influencing factors of percutaneous kyphoplasty for osteoporotic vertebral compression fractures: a 10-year follow-up study. *BMC Surg* 24, 29 (2024).

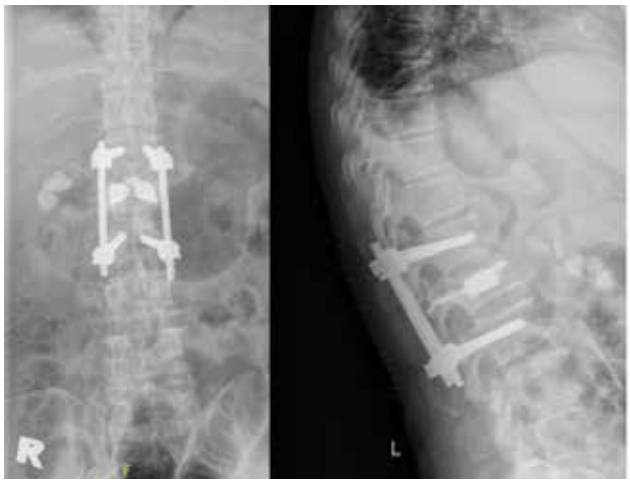


Figure 2: Post operative radiograph showing restored Vertebral height

FIXATION FOR VERTEBRAL FRACTURES WITH DIFFUSE IDIOPATHIC SKELETAL HYPEROSTOSIS, USING TECHNIQUES SUCH AS TRANSDISCAL SCREWS OR CEMENT FENESTRATED SCREWS

[1]Shinichiro T; [1]Kazuhiro T; [1]Kentaro Y ; [1]Nofumi S; [1]Toru S
1. Orthopaedics, Okayama Medical Center, Tamasu 1711-1, Okayama, Japan

INTRODUCTIONS:
Diffuse idiopathic skeletal hyperostosis (DISH) is a pathological condition where the spine becomes rigid over four or more vertebral bodies anteriorly. The trabecular bone becomes vulnerable due to stress shielding, resulting in a different type of fracture from typical compression fractures. Because of the rigid spine spanning several vertebral bodies, there is a high risk of pseudoarthrosis or delayed neurological deficit due to the long lever arm, recommending 3 above-3 below (3a3b) posterior fixation. We attempt to shorten the fixed levels by using transdiscal screws (TSD) directed cranially or cement fenestrated screws (CFS). Although the number of cases is limited, we report our findings.

MATERIALS & METHODS:
We targeted 12 cases of thoracolumbar fractures associated with diffuse idiopathic skeletal hyperostosis (DISH) treated with surgery at our institution from January 2022 to October 2023. Eight cases underwent fixation with 3 above-3 below (3a3b) technique, while four cases underwent fixation with 2 above-2 below (2a2b) using TSD and CFS. We evaluated the fixed intervertebral levels and postoperative complications related to screws.

RESULTS:
In the 3a3b cases, the fixed intervertebral levels were 5.5 levels, while in the 2a2b cases, it was 3.5 levels. None of the cases, in either group, showed complications related to the screws postoperatively.

DISCUSSIONS:
Despite the fewer fixed intervertebral spaces in 2a2b fixation compared to 3a3b, postoperative complications such as screw loosening did not occur. While the number of cases is limited, further investigation with a larger sample size is necessary.

CONCLUSION:
We suggest that transdiscal screws (TSD) and cement fenestrated screws (CFS) are effective instrumentation for fractures associated with diffuse idiopathic skeletal hyperostosis (DISH).

SURGICAL TECHNIQUES IN GERIATRIC ANKLE FRACTURES

[1]Lim SM; [1] Singram LP, [1]Wan K-L, Kam ML; [1]Ibrahim MI; [1]Balakrishnan TT
1. *Orthopaedic Department, Raja Permaisuri Bainun Hospital, Raja Ashman Shah Road, Ipoh, Malaysia*

INTRODUCTION:
Ankle fractures are the third most common fracture in the geriatric population. Management is challenging due to comorbidities, bone density and soft tissue quality. A case series of 6 patients with unstable ankle fractures who were treated surgically highlights the technique modification or augmentation done to optimize surgical outcomes.

MATERIALS & METHODS:
A retrospective review was conducted on six geriatric patients (age ≥65 years) who underwent surgery for ankle fractures between October 2023 and January 2024. Demographic data, fracture classification, surgical approach, postoperative complications, and radiological outcome were analyzed.

RESULTS:
The six patients (1 male, 5 female) had a mean age of 72 years (range: 65–79 years). Fractures were classified according to the Lauge-Hansen classification system. Surgical fixation depended on soft tissue condition and fracture configuration. A combination of techniques including percutaneous fixation, open reduction internal fixation augmented with protibia screws, ilizarov fixator, tibio-talar-calcaneal wires, were utilized. Postoperatively, none of the patients had developed infection. Two of the patients who were non-diabetic had started touch-down weightbearing at 6 weeks, while the other 4 diabetic patients started at 3 months. All fractures were healing well at three months with no soft tissue complications.

DISCUSSIONS:
Surgical intervention of geriatric fractures aims to restore anatomy, achieve stable fixation, and facilitate early mobilization, while avoiding complications. The case series emphasizes the importance of minimally invasive techniques as well as augmentation for added stability.

CONCLUSION:
Surgical management of geriatric ankle fractures can achieve satisfactory outcomes with careful consideration of patient-specific factors and modified or augmented techniques.

REFERENCES:
Ziegler et al. Ankle fractures of the geriatric patient: a narrative review. EFORT Open Rev. 2023 Jan 27;8(1):1-10. doi: 10.1530/EOR-22-0082.

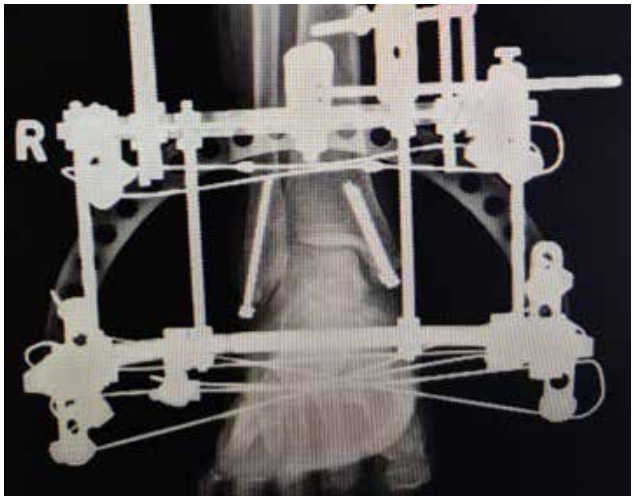


Figure 1: Percutaneous bimalleolar screw fixation augmented with ilizarov fixator

Figure 2: Open reduction internal fixation of bimalleolar fracture augmented with protibia screws

"UNVEILING FRAGILITY: A RARE CASE REPORT ON A TRIVIAL INJURY OF BILATERAL PERIPROSTHETIC FEMUR FRACTURE FOLLOWING TOTAL KNEE ARTHROPLASTY"

Anthony M1, Shahrul, Minguan, Satriya SHA
Department of Orthopaedics, Hospital Tengku Ampuan Rahimah (HTAR)

INTRODUCTION:
Periprosthetic fracture (PPF) following total knee arthroplasty (TKR) is a potentially serious complication. This injury can involve the distal femur, proximal tibia or the patella. Incidence of periprosthetic fracture following TKR is gradually increasing, and management of these fracture can be challenging for orthopaedic surgeons. Incidence of distal femoral metaphyseal PPF associated with TKR has been reported to range between 0.3% and 2.5%. There are many risk factors which can predispose to these fractures such as osteoporosis, anterior femoral notching, rheumatoid arthritis, steroid therapy, neurological diseases, previous revision arthroplasty and local osteolysis and infection.

CASE PRESENTATION:
A 57-year-old woman with history of bilateral TKR about 10years ago, presented to us with pain in her right thigh upon trying of sitting down on sitting toilet. On physical exam include pain with axial loading and restricted internal/external rotation of the right hip. An anteroposterior (AP) radiograph of the bilateral femur showed there is a PPF at the bilateral distal femur with in-situ TKR. She had this similar presentation 1 year ago and underwent left distal femoral locking plate. Meticulous preoperative planning done for the revision surgery and to ensure asuccessful clinical outcome. The fracture was to be treated with an open reduction and internal fixation of right distal femur locking plate. Post operatively, patient was started on anti-osteoporotic agent and referred to endocrinologist to prevent any further osteoporotic pathological fracture.

DISCUSSION:
The aim of treatment in fractures of the distal femur proximal to total knee arthroplasty is to achieve a painless and stable knee without significant residual malalignment. Choice of treatment depends on condition of the knee prosthesis (loose or well fixed), the fracture pattern, quality of bone stock, presence ofany other implant in the proximal femur and general physical condition of the patient. Successful treatmenthinges on the force of injury and the strength of the surrounding bone.

CONCLUSION:
Periprosthetic femur fractures often demand surgery and pose a significant challenge, even for mostexperienced orthopaedic surgeons.

REFERENCE

1. Periprosthetic Femur Fracture in a 73-Year-Old Female: A Case Report Pervez Ahsan1*, Rafi Ahmed. Annals of International Medical and Dental Research:https://aimdrjournal.com › uploads › 2022/04
2. A Case Study of Periprosthetic Femur Fracture and Internal Fixation Ariful Haque[1], Ganxuewen[2], Tong Wu[1], Zhang Long[1], Xiong Ying[3*] [1]Department of Orthopedic Surgery, Yan an Hospital Affiliated to Kunming Medical University, Yunnan, China

Figure 1: X-ray of post operative bilateral TKR

Figure 2: X-ray of bilateral distal femur PPF

Figure 3: X-ray of postoperative bilateral distal femur locking plate fixation with in-situ TKR

PERCUTANEOUS SCREW STABILIZATION FACILITATES RAPID PAIN RELIEF AND FUNCTIONAL RECOVERY FOR OCTOGENARIANS WITH LATERAL COMPRESSION TYPE FRACTURE OF PELVIS: A RETROSPECTIVE OBSERVATIONAL STUDY

[1,2,3]Chen CH; [1,2,3]Lin SY; [1,2]Wu YZ; [1,2,3]Lee JY; [1,2,3]Lee TC, [2]Chen JC, [1,2,3]Ho CJ

1. *Department of Orthopedics, Kaohsiung Municipal Ta-Tung Hospital, Kaohsiung City 80145, Taiwan*
2. *Department of Orthopedics, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 80701, Taiwan*
3. *Orthopaedic Research Center, Kaohsiung Medical University, Kaohsiung 80701, Taiwan*

INTRODUCTION:
Percutaneous screw stabilization (PSS) of the pelvic ring is a minimal invasive procedure that effectively fastens the fracture site with little destruction of soft tissue, which may facilitate immediate mobilization. This study aims to analyze the pain relief and functional recovery after PSS for octogenarians afflicted by lateral compression (LC) type fracture of pelvis.

MATERIALS & METHODS:
13 octogenarian patients with LC type fracture of pelvis who received PSS were included. Patients' demographic characteristics, comorbidities, mechanism of injury, fracture type and location, simultaneous injury in the accident, duration of hospital stay, and complications were documented. Outcome assessment included pain evaluated by visual analogue score (VAS) and activities by Majeed score on post-operative day 1, day 7, at 1-month and 3-month follow-ups.

RESULTS:
There were 1 (7.7%) male and 12 (92.3%) female patients, with mean age 83.1 years and average follow-up time of 28.4 months. There was a sharp improvement in VAS on post- operative day 1 as compared to pre-operative status after injury. After the operation, 57.1% of patients could ambulate with crutch on day 7, and 46.2% restored to pre-injury walking ability at 3-month follow-up. There was no mortality or major complications. Surgical complications included superficial wound infection (23.1%), screw loosening and nonunion at superior ramus (7.7%). Non-surgical complications included deep vein thrombosis (7.7%), septic complications (30.8%), and acute kidney injury (7.7%).

DISCUSSIONS:
To our knowledge, this is the first study that reports the outcome of PSS for octogenarian patients with lateral compression type fracture of pelvis. We demonstrates rapid pain relief is achieved as soon as post-operative day 1, most of the patients therefore initiate rehabilitation early, with near half of them (46.2%) reaching their baseline activities at 3-month follow-up. Besides, no mortality or major complication was noted.

CONCLUSION:
PSS is a reliable treatment modality for octogenarians with LC type fracture of pelvis in terms of its effect on rapid improvement in pain and functional recovery, with low rate of surgical complications. Non-surgical complications during admission were highly associated with multiple trauma and prolonged hospital stay, which may not cast a shadow on the effect of the surgery.

REFERENCES:
1. Rommens PM et al. Minimal Invasive Surgical Treatment of Fragility Fractures of the Pelvis. Chirurgia (Bucur). Sept-Oct 2017;112(5):524-537.
2. Starr AJ et al. Percutaneous screw fixation of fractures of the iliac wing and fracture-dislocations of the sacro-iliac joint. J Orthop Trauma. Feb 2002;16(2):116-23.

Poster Abstract
Policy or Practice Changes

PP01

VERTEBRAL FRAGILITY FRACTURE: A DESCRIPTIVE STUDY OF WHERE WE ARE IN BRUNEI DARUSSALAM

[1]Chia Wei, Tan; [2]Alicia Wan Yan; Poh
1. *Department of Geriatric & Palliative care, Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Brunei Darussalam*
2. *Department of Primary Health Services, Ministry of Health, Brunei Darussalam*

INTRODUCTION:
Vertebral fragility fracture (VFF) is a common manifestation of osteoporosis. It has a significant negative impact on patients' quality of life and is associated with increased risk of mortality. To date, our understanding of its prevalence, diagnosis and management locally is limited. Therefore, we aimed to provide a descriptive analysis on the demographic representation of patients with VFF to advise on development of services locally.

MATERIALS & METHODS:
A retrospective study was performed from year 2020 to 2022, involving all patients aged 60 and above, coded with ICD-10 classification for VFF. Pathological fractures and high energy trauma were excluded. Data were extracted from medical records in Bru-HIMS (e-Health system) and analyzed using descriptive statistics.

RESULTS:
159 records were identified, with only 88(55%) fulfilling eligibility criteria for inclusion into the study. Females accounted for 69% of the cohort with a median age of 79 years. It took an average of 6.4 days from the onset of symptoms to presentation. Majority (85%) presented to emergency department and nearly half (47.8%) were admitted. A fifth of the patients were found to have 2 or more VFFs. Nearly a quarter of patients did not have a history of fall. Patients were primarily looked after by surgical specialties, with only a third of patients receiving input from medical teams. Bone health assessment was performed in less than half of the population (45.5%). For those who had vitamin D levels assessed, 70% were deficient. DEXA scan was performed in 11.4% of the cases with the mean time to DEXA scan being 157 days. Majority (72.7%) received vitamin D and calcium supplement but only 17% received bisphosphonates.

DISCUSSION:
VFFs can occur in the absence of trauma, therefore, physicians should have high index of suspicion in patients with back pain. A national guideline can standardize practice to enable early diagnosis and treatment of VFFs. In resource limited countries, a fracture liaison service assisted by information technology and artificial intelligence should be considered to coordinate fragility fracture care.

CONCLUSION:
There is a need to expand local services and raise awareness on VFF amongst healthcare providers and public.

REFERENCES:
1. International Osteoporosis Federation. Fragility Fractures.
2. Lee, Y. K., Jang, S., Jang, S., Lee, H. J., Park, C., Ha, Y. C., & Kim, D. Y. (2012). Mortality after vertebral fracture in Korea: analysis of the National Claim Registry. Osteoporosis international: a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA, 23(7), 1859–1865.

Poster Abstract
Policy or Practice Changes

PP02

MODIFIABLE FACTORS ON OSTEOPOROSIS RISK AMONG POSTMENOPAUSAL WOMEN IN MALAYSIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

[1]Sharifudin, Mohd Ariff; [1]Nordin SH; [2]Mohamed SZ; [1]Taib MNA; [1]Kamudin NAF
1. Faculty of Medicine, Universiti Sultan Zainal Abidin, Malaysia
2. Faculty of Medicine, Universiti Kebangsaan Malaysia

INTRODUCTION:
Modifiable factors such as calcium intake, serum calcium and vitamin D levels, body mass index (BMI), physical activity, and functional capacity have been investigated in relation to osteoporosis among postmenopausal women (PMW) in Malaysia, yet a systematic review of these findings is lacking. This systematic review aimed to elucidate the association between various lifestyle factors and osteoporosis risk in this population.

MATERIALS & METHODS:
PubMed, Scopus Medline, EBSCOhost and the WoS databases were searched up to June 2022. Case-control and cross-sectional studies reporting comparisons, correlations, or regression analyses between calcium intake, serum calcium and vitamin D levels, BMI, physical activity, functional capacity, and osteoporosis were included. Study quality was assessed using the Newcastle-Ottawa appraisal tool. Results were qualitatively and quantitatively synthesized, including meta-analysis when data allowed.

RESULTS:
The review included one case-control study and eleven cross-sectional studies. Correlation between calcium intake and bone health across 774 PMW showed no significant association ($r = 0.165$, $p = 0.437$; random-effects model; heterogeneity $I^2 = 96.99\%$). Similarly, no association was found between serum vitamin D levels and bone health ($r = -0.0693$, $p = 0.204$; random-effects model; heterogeneity $I^2 = 39.51\%$). However, BMI exhibited a positive correlation with bone density across 1343 PMW ($r = 0.317$, $p < 0.001$; random-effects model; heterogeneity $I^2 = 75.39\%$), indicating a potential predictive role. The qualitative synthesis suggested inconclusive evidence regarding physical activity's association with bone health. Limited data prevented conclusive analysis of the relationship between serum calcium, functional capacity, and osteoporosis.

DISCUSSION:
Most studies conducted were cross-sectional, lacking diversity in study designs. The relationship between physical activity and functional capacity remains uncertain due to a lack of standardized studies conducted in Malaysia. A positive correlation between BMI and bone density was observed. These findings emphasize the necessity for more comprehensive studies and consideration of other potential confounding factors.

CONCLUSION:
No significant associations were found between calcium intake, serum vitamin D levels, and physical activity with osteoporosis in Malaysian PMW. BMI emerged as a potential predictor of bone density. Further research is needed to confirm these findings and explore the relationship between these factors and osteoporosis in this population.

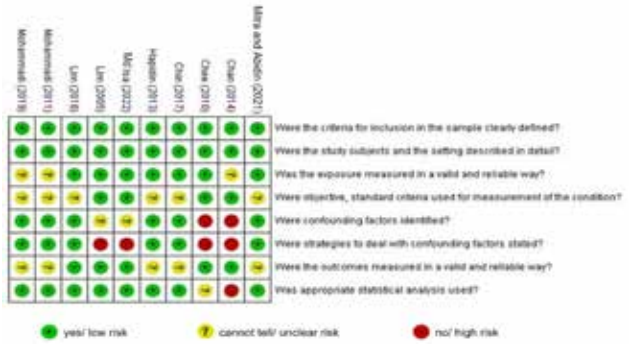


Figure 1: Risk of bias appraisal for cross-sectional studies

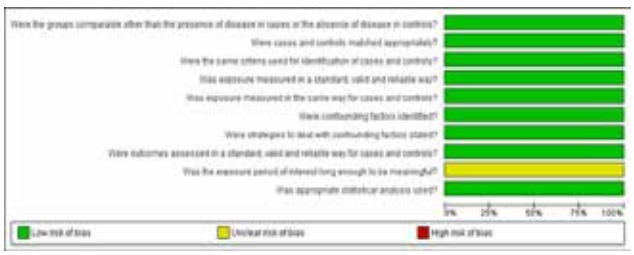


Figure 2: Risk of bias appraisal for the case-control study

Poster Abstract
Policy or Practice Changes

PP03

DO IT CORRECTLY AND YOU WILL BE AMAZED WITH THE OUTCOME

[1]Aida NS; [1]Fitri Nabilah; [1]Mohammed Harris A; [1]Abdul Aziz Y; [1]Gurmeet S
1. Orthopaedic Department ,Hospital Seberang Jaya,Pulau Pinang Malaysia

INTRODUCTION:
The most serious fragility fractures occur in the hip; such as neck of femur fracture and intertrochanteric femur fracture can lead to serious morbidity and associated with high mortality risk. The cost for managing hip fracture is undebatably high.

MATERIALS & METHODS:
For the past 1 year orthopaedic team and geriatric team Hospital Seberang Jaya are managing fragility hip fracture as a team. All patient with fragility hip fracture are evaluated thoroughly preoperatively and postoperatively. We would like to share some of our patient who underwent internal fixation and replacement surgery following intertrochanteric fracture and neck of femur fracture. The age of the patient range from 70 years old to 85 years old.

RESULTS:
Post operatively our patient are encouraged to ambulate with walking frame in ward prior to discharge. Physiotherapist are dedicated in ensuring our patient able to ambulate full weight bearing with walking frame. Similarly during follow up in clinic patient is assessed on mode of ambulation at home. The pictures shows one of our patient who are ambulating with aid in clinic after fixation of bilateral hip fracture on different occasion.

DISCUSSIONS:
Hip fracture is the most common fragility fracture in older people. Typically, a patient with an acute hip fracture presented with complains of unable to walk, seen in the emergency department and admitted to the hospital, then the fracture is surgically repaired. Despite the seeming simplicity of this pathway, many roadblocks stand in the way of optimal care. Although most of our patient are not operated within 72 hours due to financial and not enough operating time, most of our patient undergoes vigorous physiotherapy post operatively.

CONCLUSION:
There remains a huge gap in managing hip fracture in our hospital. However, our dedicated team are committed in managing fragility hip fracture.

Figure 1: Radiograph image of patient after fixation bilateral hip fracture

Figure 2: Patient ambulating in clinic. 80 years old

Poster Abstract
Policy or Practice Changes

PP04

GAME CHANGER IN MANAGING HIP FRACTURE IN HOSPITAL SEBERANG JAYA

[1]Aida NS; [1]Fitri Nabilah; [1]Mohammed Harris A ; [1]Abdul Aziz Y; [1]Gurmeet S
1. Orthopaedic Department ,Hospital Seberang Jaya,Pulau Pinang Malaysia

INTRODUCTION:
Fragility hip fracture is a useful surrogate marker of the burden of osteoporosis. With improving life expectancy and progressive ageing of population, the global burden of osteoporotic fracture is sky rising. The majority of fragility hip fractures occurred inside the home

MATERIALS & METHODS:
For the past 1 year orthopaedic team and geriatric team Hospital Seberang Jaya are managing fragility hip fracture as a team. The first and most important change in managing hip fracture in Hospital Seberang Jaya is changing from routine skin traction for neck of femur fracture to NO skin traction for any type of neck of femur fracture. We also adopt this concept in stable intertrochanteric fracture where we stop using skin traction.

RESULTS:
At initial phase of introducing fragility fracture team and the management pathway, many hiccups was encountered. This is especially when the routine tradition of skin traction not applied, it was presumed as missed management or either treating doctor or referring doctor from peripheral hospital was not accepting this concept. We had received patient who was referred from private centre for 2nd opinion after 2 weeks patient on skin traction for neck of femur fracture which was decided to be treated conservatively.

DISCUSSIONS:
Let it be conservative management nor surgical management, all fragility hip fracture in Hospital Seberang Jaya now has stop using skin traction. We are amazed with patient good pain control and mobility without skin traction. This concept was also introduced in managing non operatively patient who is not keen for surgical intervention. We start them on wheelchair ambulation at day 1 of trauma.

CONCLUSION:
Managing hip fracture is an art. Learn the art and patient will benefit more from either surgical or non surgical management

Figure 1: Day 2 in ward

Poster Abstract
Policy or Practice Changes

PP05

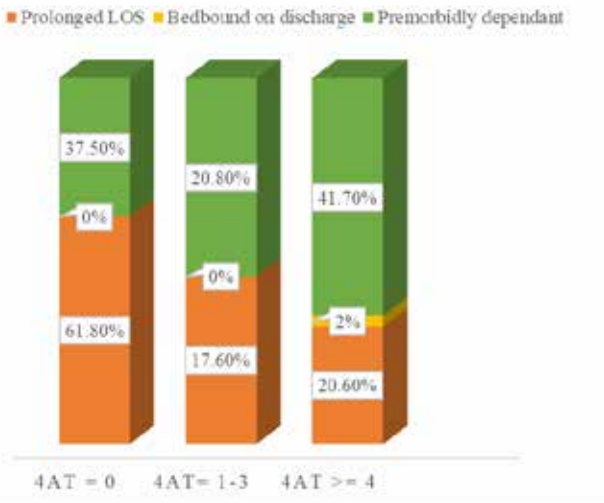
A RETROSPECTIVE STUDY ON CORRELATION BETWEEN 4ATEST AND CLINICAL CHARACTERISTICS IN ORTHO-GERIATRIC PATIENTS IN A TERTIARY CENTRE, MALAYSIA

[1]Engatramana SD, [1]Ungku Ahmad Ameen UMZ, [1]Makhtar NH
1. Geriatric Unit, Hospital Tengku Ampuan Rahimah, Selangor, Malaysia

INTRODUCTION:
4ATest (Alertness, Abbreviated Mental Test-4, Attention and Acute change or fluctuating course) is a standard tool used globally to detect cognitive impairment and delirium in hospitalised older adults. We examined the correlation between demographics, comorbidities and outcome post-fall with 4ATest in 62 ortho-geriatric patients admitted to Orthopaedic wards following a fragility hip fracture in between July 2023 to January 2024.

MATERIALS AND METHODS:
A retrospective analysis was conducted on patients aged ≥60 years old with 4ATest on admission. Logistics regression was used to assess post-fall outcome based on 4AT score as predictor.

RESULTS:
From 62 patients with the mean age of 75.9 years (SD=7.88), female patients were dominant (59.7% female vs 40.3% male). Patients in the category 4AT≥4 were the oldest with the age 80.1 years. Patients were equal in number across ethnicity (32.3% Malay, 33.9% Chinese and 32.3% Indian). 69.4% of patients had their first fall within the past year. On admission, 62.9% had 4AT=0, 17.7% with 4AT=1-3 and 19.4% had 4AT≥4. A significant association of 4AT≥4 was seen in patients with history of stroke (P value= 0.038), dementia (P value=0.008) and chronic kidney disease (P value=0.027). Patients who were dependant prior to fracture showed a notable association with 4AT≥4. (P value=0.004). No relevant correlation seen with 4AT≥4 and prolonged hospital stay. (P value =0.78).



Graph 1: Association of 4AT test with post-fall outcome

DISCUSSION:
Patients with multiple comorbidities particularly history of stroke, dementia and CKD with poor premorbid functionality are significantly associated with higher delirium rates. Contrary to expectations of a prolonged hospital stay in patients with 4AT≥4, study revealed otherwise as they were medically unfit and financially constrained, leading to early discharge.

CONCLUSION:
Early assessment using 4ATest in older adults admitted with fragility hip fracture facilitates physician to promptly identify and treat delirium causes prior to surgery.

REFERENCE:
1.Thang et al, Age and Ageing May 2020; page 411-417

FEMORAL DIAPHYSEAL STRESS FRACTURE IN A GERIATRIC MALE WITH NORMAL BONE MINERAL DENSITY: A CASE REPORT

[1]Jackson-Cross, Hayden; [2]David S
1. *Sir Charles Gairdner Hospital, Hospital Avenue, Nedlands, WA*
2. *Joondalus Health Campus, Joondalup Avenue, Joondalup, WA.*

INTRODUCTION:
Stress fractures are formed by microfractures from repetitive load that eventually lead to overt fracture and can be classified as either fatigue (excessive stress on normal bone) or insufficiency (normal stress on pathologically weakened bone).[1,2] Fatigue stress fractures predominantly occur in athletes whilst insufficiency stress fractures are more common in post-menopausal women or as a result of underlying bone pathology.[1,2] Clinical presentation involves idiopathic mechanical pain and diagnosis is most sensitive using magnetic resonance imaging (MRI) or computerized tomography (CT).[1,2]

OBJECTIVE:
To highlight the challenges associated with the diagnosis of stress fracture in an atypical presentation.

MATERIALS & METHODS:
A retrospective case study was conducted.

RESULTS:
A 70-year-old healthy male who worked maintaining buses presented twice to a metropolitan emergency department with non-specific thigh pain and was discharged after normal plain image radiographs. On a third presentation, a transverse diaphyseal femoral fracture was reported on plain imaging and confirmed using CT. Biochemical and radiological investigations precluded underlying disorders of endocrine, bone homeostasis, osteoporosis, pathological fractures secondary to malignancy or contralateral fracture. Further history revealed the patient's occupation involved exiting dozens of buses each day, usually leading with the fractured leg. The fracture was managed conservatively with adequate recovery.

DISCUSSION:
Diagnosing stress fractures in atypical presentations relies heavily on clinical acumen due to the non-specific prodrome and poor sensitivity of plain radiograph imaging. Patients that do not fit into the typical epidemiology for stress fracture risk delay in diagnosis until the fracture is overt.

CONCLUSION:
Careful history taking should be performed in presentations suggestive of fracture but lacking epidemiological risk factors with careful consideration to progress to MRI or CT when plain imaging is unremarkable.

REFERENCES:
1. Matcuk Jr GR, Mahanty SR, Skalski MR, et al. Stress fractures: pathophysiology, clinical presentation, imaging features and treatment options. *Emerg Radiol*. 2016;23(4):365-375. doi:10.1007/s10140-016-1390-5
2. Moreira CA, Bilezikian JP. Stress Fractures: Concepts and Therapeutics. *J Clin Endocrinol Metab*. 2017;102(2):525-534. doi:10.1210/jc.2016-2720

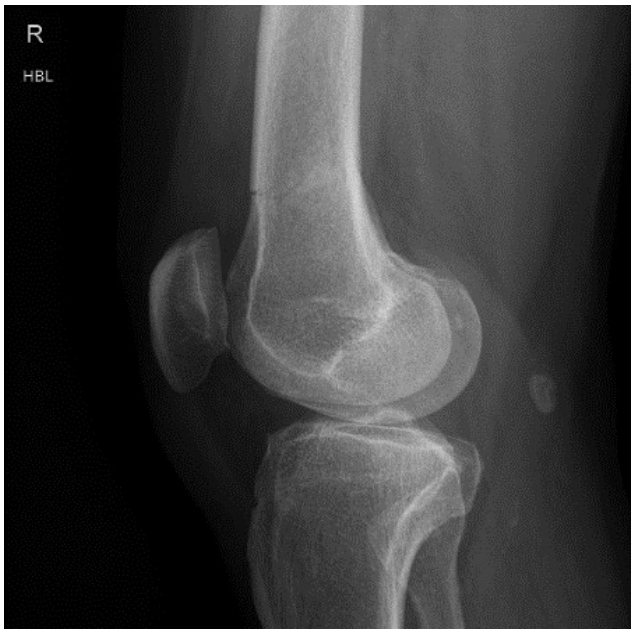


Figure 1: Lateral plain radiograph demonstrating transverse femoral diaphyseal stress fracture

FRACTURE LIAISON SERVICE INITIATION IN BANJARMASIN, INDONESIA

[1]Noor, Zairin; [2]Izaak, Zoelkarnain A.; [2]Siagian, Andreas M. H.; [2]Putera, Husna D.; [2]Damayanthi, Essy D.; [2]Kesuwa, Wongso; [2]Iqbal, Muhammad; [2]Tobing, Sutan A. L.,; [2]Septadi, Ridma I.; [2]Nurikhwan, Pandji W.;

1. *Head of Research Center for Osteoporosis, Bone Health, and Fragility Fractures, Lambung Mangkurat University, Banjarmasin, Indonesia.*
2. *Department of Orthopaedics & Traumatology, Lambung Mangkurat University-Ulin General Hospital, Banjarmasin, Indonesia.*

INTRODUCTION:
Fracture Liaison Service (FLS) is a Social Services for post fragility fracture patients. It's primarily a part of secondary fracture prevention for osteoporosis patients. Although has been long introduced, it's still a very rare service in Indonesia. The objective of this article is to introduce the ups and downs of Fracture Liaison Service Initiation in a city in Indonesia.

MATERIALS & METHODS:
It's a narrative review focusing on brief history, regulations, function, ongoing challenges and progress to initiate Fracture Liaison Service since 2022 in Banjarmasin, a city in Indonesia.

RESULTS & DISCUSSIONS:
Fracture Liaison Service (FLS) consists of service coordinators, usually medical personnel (clinical nurse specialist) who identifies patients with fracture according to an agreed protocol. Standing privately, FLS in Banjarmasin still face challenge in personnel, experience, proper workplace, funding, and the most important, proper regulation.

CONCLUSION:
Fracture Liaison Service remains the ideal follow-up program for secondary fracture management. However, it's still not a primary concern in Indonesia. Unless given proper attention, lack of regulation, funding, participation, and promotion will remain a challenge to overcome in the next following years.

REFERENCES:
Decree of the Minister of Health of the Republic of Indonesia, number hk.01.07/menkes/2171/2023 about National Guidelines for Medical Services & Management of Osteoporosis. 2023.

FACTORS ASSOCIATED WITH RECURRENT FALLS AND ITS OUTCOME 6 MONTHS POST INTERVENTION IN FALL CLINIC, PRIMARY CARE CLINIC KUALA LUMPUR (KKKL)

Nagammai T; Tay KL; Sitti Bahria Basari; Nabilah Yahaya; Atikah
Pandi Fall Clinic, Klinik Kesihatan Kuala Lumpur, W.P. Kuala Lumpur, Malaysia

INTRODUCTION:

Malaysia is expected to become aging nation by 2030, where population aged 60 and above are projected to occupy 15.3% of total population [1]. Falls are common among elderly which leads to major morbidity and mortality [2]. Due to this Fall clinic KKKL was started since February 2021 with primary objective to identify risk factors and to prevent fall among elderly.

MATERIALS & METHODS:

A retrospective Cohort study with universal sampling was done. All medical records of 86 patients under Fall clinic from February 2021 until June 2023 were reviewed. Independent factors for recurrent fall included in this study were: basic demographic data, concurrent comorbidity, home environment assessment, baseline Time Up and Go test (TUG) as well as current medication profile. $\chi 2$ test or Fisher's exact test was used to test the statistical significance, and factors with p-value of < 0.05 have been considered statistically significant. Odd ratios with 95% confidence interval were calculated with binary logistic regression. A post intervention analysis was then made to assess the improvement of identified risk factors after intervention.

RESULTS AND DISCUSSION:

A total of 86 cases was included into this study and among these patients, 57(77.9%) of the patients were female and 23(26.7%) of them has recurrent fall. The analysis for risk factors for recurrent fall is detailed as below:

Parameter	p-value	OR (95% CI)
History of CVA	0.011	5.206 (1.136 – 20.598)
Probable Sarcopenia	0.023	3.250 (1.147 – 9.212)
Abnormal TUG	0.005	5.067 (1.545 – 16.616)
Usage of Insulin	0.022	3.269 (1.159 – 9.220)

Table 1: Factor associated with recurrent fall

Post intervention analysis showed that 22(25.6%) patients have improvement in TUG score 6 months later.

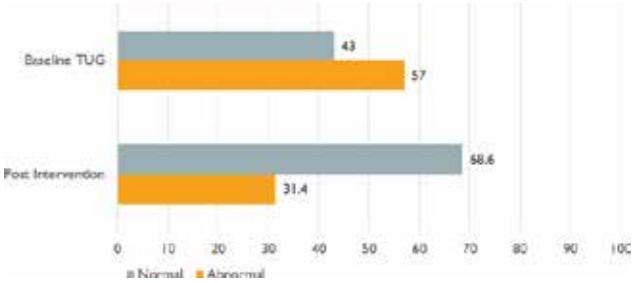


Figure 1: Change in TUG after 6 months (in %)

Besides that, 18(20.9%) of the patient were also found to have improvement in their DFIT (Dose, Frequency, Indication and Time) score and more patients were observed to achieve 100% DFIT score after intervention.

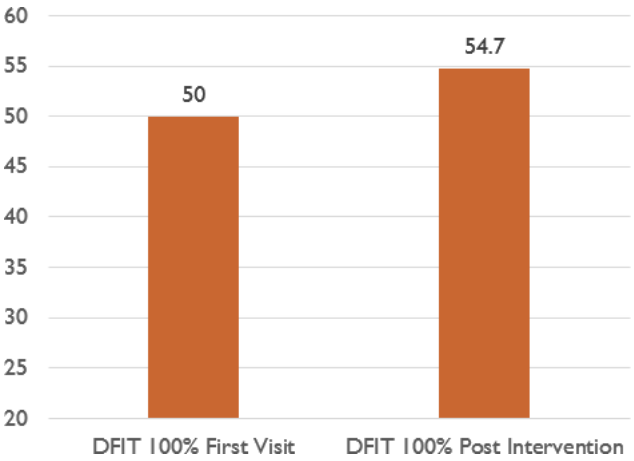


Figure 2: Change in DFIT after 6 months (in %)

CONCLUSION:

History of CVA, probable sarcopenia, abnormal TUG and usage of insulin are associated with recurrent fall among elderly. Multi-disciplinary interventions offered by Fall Clinic is useful in optimizing those risk factors.

REFERENCES:

1. Institute for Public Health (IPH) 2019. National Health and Morbidity Survey 2018 (NHMS 2018): Elderly Health. Vol. I: Methodology and General Findings, 2018. 132 pages
2. Frith J, Davison J. Falls. Reviews in Clinical Gerontology. 2013;23(2):101-117. doi:10.1017/S0959259813000026

EXPANSION OF FRACTURE LIAISON SERVICES FOR THE PATIENTS WITH "UNRECOGNIZABLE VERTEBRAL FRACTURES" ON CHEST/ABDOMINAL CT SAGITTAL IMAGES

Toru Honda
Department of Rehabilitation, Kagawa Prefectural Central Hospital, Asahimachi 1-2-1, Takamatsu City, Jaspan

INTRODUCTION:
The presenter is a rehabilitation doctor covering all wards of a regional central hospital. Most of the elderly inpatients suffer from lifestyle-related diseases and/or cancer. These are risk factors for osteoporosis. Here is an easy way to find patients eligible for osteoporosis treatment.

MATERIALS & METHODS:
Of about 5,000 patients that the presenter was involved directly in rehabilitation from September 2017 to January 2024, the subjects of this study were those who SQ grade 1 or higher fractures were found on CT sagittal images. Standard medication and guidance of exercise and nutrition were provided by the presenter.

RESULTS:
Of the 1413 eligible patients, 467 gastro-entero-logical surgery, 346 thoracic surgery, and 195 cardiovascular surgery and cardiology patients were included. At 6 months after the first contact, one-third of patients are treated by their local doctors, 169 patients had no treatment due to errors in schedule management, and only 39 patients refused the recommendation to take measures against osteoporosis (Fig.1).

Secondary fragility fractures occurred only in patients with multiple or high-grade pre-existing vertebral fractures. BMD in patients with low initial BMD increased with treatment, and BMD in patients with enough initial BMD could be raised by changing the drugs when it went down (Fig 2).

DISCUSSIONS:
The UK's clinical standard has been focusing on "newly identified vertebral fracture" since 2017. Japan has the most CTs per capita in the world. About 80% of hospitalized patients undergo a CT scan as a basic examination, and patients with diseases at risk of recurrence are followed up for 5 years using CT scan.

In addition, diagnostic imaging support using artificial intelligence is also advancing.It was easy to find patients with multiple risk factors of osteoporosis by this method, and the patients accepted well the recommendations for osteoporosis control. The attending doctors and family doctors had also become supportive. However, it was a solo attempt, and sometimes scheduling errors occurred.

CONCLUSION:
Use of Chest/abdominal CT images is beneficial to detect osteoporosis patients. It is hoped that FLS will be deployed in each department of the regional central hospitals collaborating with regional medical network in consideration of comorbidities of the elderly patient.

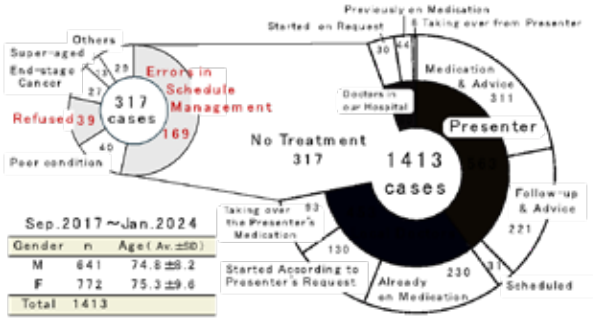


Figure 1: Treatment status 6 months after the first contact

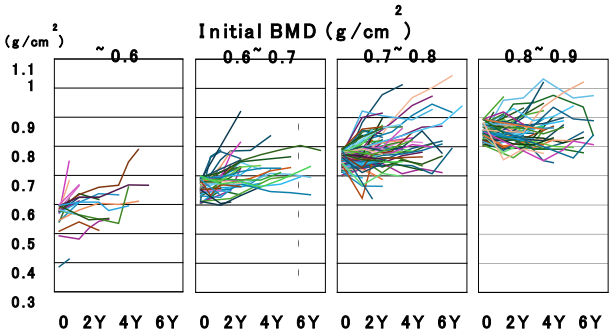


Figure 2: BMD changes of lumber spine in female patients

COST-UTILITY ANALYSIS OF FRACTURE LIAISON SERVICE IN OSTEOPOROTIC HIP FRACTURE PATIENTS AT TERTIARY CARE HOSPITAL IN THAILAND

Amphansap T; Boontan C; Therdyothin A
Department of Orthopedics, Police General Hospital, Bangkok, Thailand

INTRODUCTION:
Osteoporotic hip fracture is associated with high morbidity, mortality, and contributed to a huge socioeconomic burden (1). In Thailand, Fracture Liaison Services (FLS) have been established as a comprehensive multidisciplinary care and offer secondary fracture prevention (2). However, its cost-effectiveness in Thailand remains unknown. Hence, this research aimed to assess the cost-utility analysis (CUA) of FLS in osteoporotic hip fracture patients.

MATERIALS & METHODS:
A prospective cohort study was performed between September 2021 and April 2023 at Police General Hospital. All patients presenting with low-energy hip fractures participated in the institution's FLS and were recruited into the study. One-year direct medical, direct non-medical, and indirect costs were collected. EQ-5D-5L was used to assess the health utility state. Subsequently, cost per quality-adjusted life years (QALY) was estimated at 12-month follow-up and compared to previous cost per QALY studies.

RESULTS:
The cohort consisted of 71 patients. The average age was 78.13 years old. The majority (73.2%) of the participants were female. Median total direct cost was $6,096.99(range 5,506.03-6,566.53) and total cost was $7,503.16(range 7,123.85-8,309.49). At 12-month follow-up, median QALY was 0.872(range 0.872-0.957) and cost per QALY was $8,604.50.

DISCUSSIONS:
Hip fracture has a high impact on patients' quality of life and on society. In 2022, Thai National GDP per capita was $7,650.88 and Bangkok GPP was $16,954.04. The total cost of osteoporotic hip fracture from present study was > 50% of Bangkok GPP and 112% of the Thai National GDP per capita. From a previous Thai study in 2004, the median total cost was $3,157.00 per patient per year. And another study in 2008, cost per QALY was 6,620.52 (3). Compared with previous studies with traditional care, FLS confers higher total cost. However, the number was much lower than other studies from developed countries (4).

CONCLUSION:
The FLS in Thailand is still considered cost-effective, offering patients not only comprehensive secondary fracture prevention, but also improved quality of life at a reasonable cost.

REFERENCES:
1. Woratanarat P et al. Cost analysis of osteoporotic hip fracture. J Med Assoc Thai 2005;88: 96-104
2. Amphansap T et al. Evaluation of Police General Hospital's Fracture Liaison Service (PGH's FLS): The first study of a Fracture Liaison Service in Thailand. Osteoporosis and Sarcopenia 2016;2: 238-243
3. Wajanavisit W et al. Cost-utility analysis of osteoporotic hip fractures in Thais. J Med Assoc Thai 2015;98: 65-69
4. C.-H. Wu et al. Economic impact and cost-effectiveness of fracture liaison services: a systematic review of the literature. Osteoporos Int 2018;29(6):1227-1242

ADDRESSING THE IMPENDING CHALLENGES OF AGING: IMPLEMENTING A GERIATRIC THERAPY NURSE POLICY IN THE PHILIPPINES

[1]Geneblazo, Neil B.; [1]Angkico, Christopher John F.; [1]Miranda, Kevin Roy Y.; [1]Faustino, Darlene C.
1. Department of Nursing Services, Philippine Heart Center, East Avenue, Quezon City, Philippines

INTRODUCTION:
The global population is undergoing rapid aging, presenting significant challenges to healthcare systems and economies worldwide. The Philippines is no exception, with projections indicating a substantial increase in the elderly population by 2030[1]. This research aims to address this impending demographic shift by developing and implementing a Geriatric Therapy Nurse (GTN) Policy focused on promoting the wellness and health of geriatric patients.

MATERIALS & METHODS:
The researchers conducted face-to-face and focus group interviews with occupational therapist, physical therapists, cardiologists, and neurologists that involve unstructured and generally open-ended questions to elicit views and opinions on how to assess the needs of geriatric patients. Also, data from various sources, including United Nations and national demographic surveys were analyzed to underscore the necessity of proactive measures to meet the needs of aging populations.

RESULTS:
The GTN Policy was developed from the review of journals and analysis of interview data. It encompasses comprehensive objectives, the assessment of geriatric patients' needs, the development of tailored care plans, and the strategies to evaluate the policy effectiveness through patient and family feedback. Specific solutions proposed within the policy include the utilization of the Memory and Motor Assessment and Treatment Tool (MMATT), the implementation of a Geriatric Nursing Consent Form, and the adoption of age-appropriate teaching strategies for health literacy promotion among older adults.

DISCUSSIONS:
The GTN Policy advocates for the utilization of patient classification systems for therapy and the dissemination of a Revised Health Manual tailored to geriatric patients' needs. By integrating these strategies, the policy aims to enhance the delivery of care and management for geriatric patients, particularly within the Philippine Heart Center.

CONCLUSION:
Recommendations for the refinement and implementation of the GTN Policy are provided, including revising, and updating policy forms, creating a multidisciplinary Geriatric Team, and ensuring effective communication strategies. Overall, this research underscores the urgency of addressing the challenges posed by an aging population and provides a roadmap for healthcare policymakers and practitioners to proactively manage the evolving healthcare needs of elderly individuals in the Philippines.

REFERENCE:
Galvez, D. (2019). Philippines to have 'aging population' between 2030 and 2035 – CPD. Inquirer.net

Poster Abstract
Policy or Practice Changes

PP12

A QUALITATIVE STUDY ON THE ENHANCEMENT OF FRACTURE PREVENTION POLICIES

Thurairasu, Vanitha
Public Health Division, Perak State Health Department, Malaysia

INTRODUCTION:
Osteoporosis-related fractures are a significant public health issue, especially in Malaysia, where diverse healthcare environments present unique challenges. The study examines the gap in osteoporosis prevention implementation in Malaysia, aiming to refine policies and practices for fracture prevention.

MATERIALS & METHODS:
The study utilized a qualitative research methodology, with semi-structured interviews conducted among healthcare professionals, patients, and caregivers in Kinta, Perak Darul Ridzuan, to gather insights into the implementation of evidence-based fracture prevention policies. Additionally, an analysis of prevailing policies was undertaken to evaluate current practices in this region. A total of 58 participants were engaged to ensure a comprehensive understanding of the local context and challenges in osteoporosis management.

RESULTS:
Descriptive statistics revealed that prior to intervention, only 40% of healthcare facilities adhered to international osteoporosis management standards, and patient awareness of osteoporosis prevention was at 30%. Post-intervention, adherence rates among healthcare providers increased significantly to 75% (Chi-Square = 13.64, P = 0.00022), and patient awareness improved to 80%. Semi-structured interviews highlighted key barriers such as limited resources and insufficient training, while facilitators included strong support networks and effective communication between healthcare providers and patients. Based on these findings, a strategic framework was proposed, focusing on multidisciplinary collaboration, enhanced professional education, and patient-centered approaches.

DISCUSSIONS:
The study highlights the effectiveness of targeted educational interventions in enhancing healthcare provider adherence to osteoporosis management guidelines and improving patient awareness in Malaysia.

CONCLUSION:
Targeted interventions have shown promise in narrowing the gap between research and practice in osteoporosis prevention, with a strategic framework demonstrating potential for broad application in enhancing patient outcomes.

REFERENCES:
1. Chan, D.D., Chang, L.Y., Akesson, K.E., et al. (2018). "Consensus on best practice standards for Fracture Liaison Service in the Asia-Pacific region." *Archives of Osteoporosis*, 13(1), 59. DOI: 10.1007/s11657-018-0463-3.
2. Mitchell, P.J. (2022). "Fracture liaison: A crucial tool in the fight against fragility fracture." *Maturitas*, 165, 26-32. DOI: 10.1016/j.maturitas.2022.07.001.

Participant Category	Number	Percentage of Total	Thematic Analysis Highlights
Hospital and Clinic Administrators	7	12.1%	Guideline Clarity: Administrators seek more explicit guidelines for effective osteoporosis management.
General Practitioners (GPs) and Family Doctors	10	17.2%	Patient Education: GPs emphasize ongoing education and consistent follow-ups for osteoporosis patients.
Physiotherapists and Rehabilitation Specialists	8	13.8%	Care Integration: There's a noted lack of coordinated care approaches among specialties for osteoporosis.
Pharmacists	7	12.1%	Medication Adherence: Pharmacists highlight the challenges in ensuring patient adherence to treatment plans.
Dietitians and Nutritionists	6	10.3%	Nutritional Awareness: The need for increased public education on nutrition's role in bone health was noted.
Community Health Workers	8	13.8%	Awareness Gaps: Community workers point out a significant gap in public awareness regarding osteoporosis prevention.
Patient Representatives	12	20.7%	Information Need: Patients express a need for more comprehensive information and support for osteoporosis management.

Table 1: Participant Distribution and Thematic Analysis Results

Poster Abstract
Policy or Practice Changes

PP13

FALLS RISK ASSESSMENT IN THE PARK - IS IT A CASE FINDING OPPORTUNITY?

Janardanan N[1], Ho YB[2], Ong WF[2], Tay HW[3], Mohamad Zahir MZ[4], Suppamutharwyam M[5], Kok SH[5], Embong J[5], Razali RM[5]

1. *Geriatric Medicine, University Malaya Medical Centre*
2. *Geriatric Medicine, Selayang Hospital*
3. *Geriatric Medicine, Tengku Ampuan Rahimah Hospital*
4. *Geriatric Medicine, Sultan Ahmad Shah Medical Centre*
5. *Geriatric Medicine, Kuala Lumpur Hospital*

INTRODUCTION:
Falls are common, with almost one third of community-dwelling older adults falling yearly in some countries.[1] Therefore, guidelines have recommended opportunistic case finding for falls risk in these elderlies.[2] This study aims to determine falls risk among the elderly in a community park. Secondary endpoints were to determine the frequency of common falls risk factors and to correlate them with falls risk.

MATERIALS AND METHODS:
Falls risk assessment was done during a community outreach program in 2023. Older adults were screened whereupon a gait speed of <0.8m/s was suggestive of intermediate falls risk and a value above that was suggestive of low falls risk based on world guidelines[2]. Falls risk factors measured include age, BMI, diabetic history, frailty (FRAIL scale), sarcopenia (SARC-F), cognitive function (Mini-Cog) and polypharmacy. Correlation between falls risk factors and falls risk was done using Chi-Squared analysis.

RESULTS:
We analysed 108 individuals, 66.7% were females and 79.6% were Malays. Analysing gait speed, 9.3% have intermediate falls risk, and 90.7% had low falls risk. When examining risk factors, mean age was 65.3 years with 18.5% being above 70. 56% were obese and 22.2% had diabetes. Furthermore, 2.8% were frail, 8.7% had sarcopenia risk, 13% might have cognitive impairment and 12% had polypharmacy. Among the fall risk factors, only age showed significant corelation with falls risk (p=0.071, CI=95%).

DISCUSSION:
Results contrasted with a study that showed 0.7 % had intermediate risk and after 2 years, injurious falls occurred in 7.1% and 18.8% in the low and intermediate groups respectively.[3] Age not only correlated with falls risk, but also with fall-related deaths[4]. Our study is limited by a small sample size and convenience sampling. Furthermore, most falls risk factors were determined by simple screening tools. Features of high-risk falls such injurious falls and recurrent falls were not screened.

CONCLUSION:
Almost 1 in 10 elderlies have intermediate falls risk in this community screening. References showing that this is associated with an increased risk of injurious falls emphasizes opportunistic case finding. Finally, the correlation of falls risk with age highlights that intervention and education on falls prevention should start early.

REFERENCES:
1. Rubenstein LZ, Josephson KR. The epidemiology of falls and syncope. *Clin Geriatr Med.* 2002;18:141–158.
2. Montero-Odasso M, et al. The Task Force on Global Guidelines for Falls in Older Adults, World guidelines for falls prevention and management for older adults: a global initiative, *Age and Ageing*, Volume 51, Issue 9, 2022.Top of Form.
3. Hartley P, Forsyth F, Rowbotham S, Briggs R, Kenny RA, Romero-Ortuno R. The use of the World Guidelines for Falls Prevention and Management's risk stratification algorithm in predicting falls in The Irish Longitudinal Study on Ageing (TILDA). Age Ageing. 2023.
4. Institute of Medicine (US; Berg RL, Cassells JS, editors. The Second Fifty Years: Promoting Health and Preventing Disability. Washington (DC): National Academies Press (US); 1992.

Poster Abstract
Policy or Practice Changes

PP14

ENHANCING TEAM COMMUNICATION IN FRACTURE LIAISON SERVICES: A KEY FACTOR IN OSTEOPOROTIC FRACTURE MANAGEMENT

Dhineish K, Wong TS
Orthopaedic Department, Hospital Sri Aman, Sarawak

INTRODUCTION:
Fracture Liaison Services (FLS) have emerged as a cornerstone in the management and prevention of osteoporotic fractures. Central to the success of FLS is efficient team communication, which facilitates seamless coordination among healthcare professionals and ensures optimal patient care. These abstract highlights the importance of team communication within FLS and explores strategies to enhance communication effectiveness.

FLS operates within multidisciplinary teams comprising various clinical teams and allied healthcare professionals. Effective communication among team members is essential for timely identification, assessment, and management of individuals at risk of osteoporotic fractures. Communication breakdowns within FLS can lead to missed opportunities for secondary fracture prevention, suboptimal patient treatments, and increased healthcare costs.

DISCUSSION:
Several factors can influence the communication between the team members. These include written clear FLS policies for each department with responsibilities, objectives, protocols and workflows, open channels of communication, and regular interdisciplinary meetings. Enhancing team communication in FLS requires a multifaceted approach. Training and education programs can promote effective communication skills among healthcare professionals, fostering a culture of collaboration and mutual respect. Additionally, leadership support and organizational commitment are vital for creating an environment that values and prioritizes communication within FLS.

As current technology strives to streamline operations and foster team collaboration, group text messaging become known as a powerful tool in digital communication platform. It allows immediate secured vital information delivered to every FLS members simultaneously, ensuring user swiftly disseminate important updates or announcements. This approach is beneficial for early referral among FLS team for optimal treatment.

The benefits of effective team communication in FLS are plenty. Improved communication promotes care coordination, reduces errors and delays in treatment, enhances patient satisfaction, and ultimately leads to better clinical outcomes. Moreover, it fosters a sense of teamwork and camaraderie among healthcare professionals, enhancing job satisfaction and morale.

CONCLUSION:
In conclusion, effective team communication is indispensable for the success of Fracture Liaison Services in managing and preventing osteoporotic fractures. By implementing strategies to enhance communication within FLS, healthcare systems can optimize patient care delivery, improve outcomes, and mitigate the burden of osteoporosis-related morbidity and mortality.

REFERENCE:
Curtis, J. R., & Silverman, S. L. (2013). Commentary: The Five Ws of a Fracture Liaison Service: Why, Who, What, Where, and How? In Osteoporosis, We Reap What We Sow.

COMPARISON OF FUNCTIONAL OUTCOME IN CKD AND NON-CKD PATIENTS FOLLOWING FEMORAL NECK FRACTURE UNDERGOING BIPOLAR HEMIARTHROPLASTY

[1]Phruetthiphat, Ong-Art; [1]Pinijprapa, Panukorn; [1]Plumarom,Yanin; [2]Satravaha, Yodhathai
1. *Phramongkutklao Hospital, Bangkok, Thailand.*
2. *Orthodontic Department, Mahidol university, Bangkok, Thailand*

INTRODUCTION:
Chronic kidney disease (CKD) affects 10% of the world's population and is associated with an increased risk of femoral neck fracture (FNF). Bipolar hemiarthroplasty (BHA) is a common surgical treatment for FNF, with generally good outcomes. However, existing research lacks sufficient data on the specific impact of CKD on functional outcomes following BHA for FNF. Therefore, this study aims to compare functional outcomes between individuals with and without CKD who underwent BHA for FNF as well as to identify the comparison between advanced CKD and non-advanced CKD.

MATERIALS & METHODS:
A total of 438 patients over 60 years old who sustained a femoral neck fracture (FNF) from low-energy trauma and underwent bipolar hemiarthroplasty (BHA) were included in the study. Patients were classified into two groups based on their glomerular filtration rate (GFR). those patients without CKD [GFR ≥60 milliliters per minute(ml/min)] and those patients with CKD [GFR<60 ml/min] and non-advanced [GFR ≥30 ml/min] and advanced CKD [GFR<30 ml/min]. Demographic data, comorbidities, and femoral bone morphology were reviewed. Functional outcome was assessed using the Harris Hip Score (HHS) at three time points: pre-injury, and one year and 2 years post-surgery.

RESULT AND DISCUSSION:
According to a comparison between CKD and Non-CKD groups, there was no difference in age, gender, and BMI in both groups while the ASA class was significantly different between two groups ($p<0.001$). In addition, the preinjury status, one year, and 2 years HHS were significantly different between both groups ($p<0.001$, $p=0.002$, and $p=0.011$, respectively).
Additionally, patients with advanced CKD had a significantly higher ASA class ($p < 0.001$), took longer to start rehabilitation ($p = 0.043$), and had lower HHS scores at all three time points compared to non-advanced CKD ($p < 0.001$, $p < 0.001$, and $p = 0.002$, respectively). This suggests that the severity of CKD is associated with poorer overall health, longer recovery times, and worse hip function after surgery.

CONCLUSION:
CKD is a significant factor influencing functional outcomes in patients with FNF treated with BHA. Studies consistently demonstrate poorer underlying health status and functional outcomes in CKD patients compared to their non-CKD counterparts.

MINIMALLY CLINICALLY IMPORTANT DIFFERENCE OF THE KANSAS UNIVERSITY STANDING BALANCE SCALE IN OLDER INPATIENTS AT TERTIARY HOSPITAL

[1]Kim, Asall; [1]Ji, Myungki; [1]Kim, Youn-Ji; [1]Lim, Jae-Young
1. *Department of Rehabilitation Medicine, Seoul National University Bundang Hospital, Gumi-ro 173beon-gil, Seongnam-si, Republic of Korea*

INTRODUCTION:
There is no known minimally clinically important difference (MCID) for Kansas University Standing Balance Scale (KUSBS) which was developed to overcome shortcomings of berg balance scales for acute inpatients. This study aims to investigate MCID of KUSBS using anchor-based approach. It was hypothesized that MCID would differ from ambulation level.

MATERIALS & METHODS:
This study was a retrospective study that included 667 older inpatients. Functional ambulation categories (FAC) were used as anchors for the change in KUSBS scores during admission. MCID was defined as an improvement for more than one point in KUSBS. Substantial change was defined as an increase of 2 points. Data were classified into three groups: FAC 0, FAC 1&2, and FAC 3.

RESULTS:
MCID and area under curve (AUC) of the KUSBS were 0.5 and 0.784, respectively. MCID for the patients with FAC 0 and 1&2 were 0.5 and 1.5, with an AUC of 0.836 and 0.741, respectively ($p < 0.001$). For FAC 3, MCID and AUC were 0.5 and 0.590, but it was not significant ($p = 0.171$).
Substantial change of the KUSBS were 1.5 with an AUC of 0.763 ($p < 0.001$). Substantial change for the patients with FAC 0, 1&2, and 3 were 1.5, 3.5, and 4.5, with an AUC of 0.825, 0.734, and 0.661, respectively ($p < 0.05$).

DISCUSSIONS:
The results support our hypothesis the MCID would be dependent upon initial walking ability.

In general, 1 point increase of KUSBS could be considered as a meaningful improvement in standing balance for older inpatients. However, 2 or 3 points increase of SBS would be meaningful for patients with FAC 1&2.

Although MCID was insignificant for patients with FAC 3, 5 points increase of KUSBS can be considered as a substantial change for them. Therefore, we concluded to assume 4 points increase of SBS as a MCID for them.

CONCLUSION:
MCID was dependent upon the walking ability at admission. These results may be helpful to interpret standing balance function improvement.

REFERENCES:
Kluding et al, Reliability, responsiveness, and validity of the Kansas University Standing Balance Scale. J Geriatr Phys Ther. 2006;29(3):93-9.

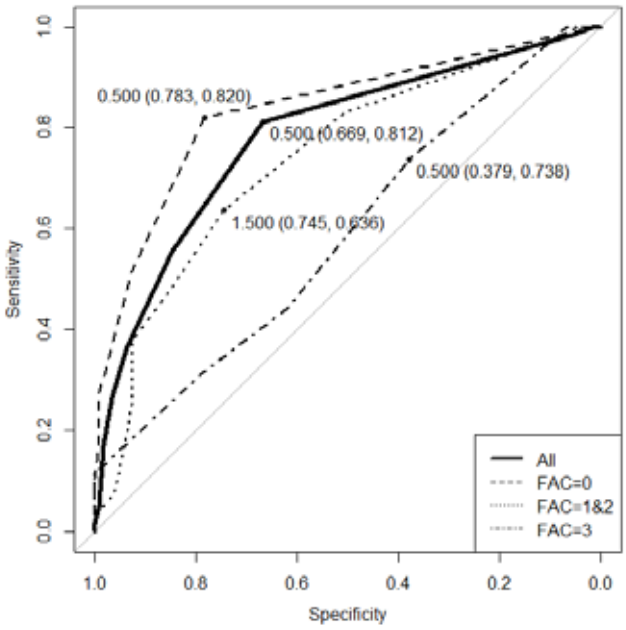


Figure 1: MCID of KUSBS

Poster Abstract
Rehabilitation

PR03

THE IMPACT OF VERTEBRAL FRAGILITY FRACTURE ON PATIENT OUTCOMES

[1]Chia Wei, Tan; [2]Alicia Wan Yan, Poh
1. *Department of Geriatric & Palliative Care, Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Brunei Darussalam*
2. *Department of Primary Health Services, Ministry of Health, Brunei Darussalam*

INTRODUCTION:
Vertebral fragility fracture (VFF) is the most common osteoporotic fracture, but is often underdiagnosed and undertreated. VFF has significant negative impact on patients' quality of life. Herein, we report on the outcomes of patients with newly diagnosed VFF.

MATERIALS & METHODS:
A retrospective review of medical notes was performed on patients who were newly diagnosed with VFF according to the ICD-10 Classification between the years 2020-2022. Frailty was graded according to the Clinical Frailty Scale (CFS) pre- and post- VFF diagnosis. CFS 1-3 were grouped as "fit", 4-5 as "mild", 6 as "moderate" and "7-9" as severe. Previous history of fragility fracture, subsequent fragility fractures and referrals to therapy services post VFF were also obtained. Descriptive statistics were used to analyze the data.

RESULTS:
There were 88 case notes reviewed, with 69% of the cohort being females. The median age was 79 years. Using Clinical Frailty Scale (CFS), 50% of the population were deemed "fit" prior to VFF. However, this reduced to 30% post VFF. Similarly, there was an increased number of patients with severe frailty post VFF (from 4.5% to 25%). Almost a quarter of the cohort had previous fragility fractures. Nearly a tenth had subsequent fragility fractures. The median length of stay was 9 days, with more than 95% of the cases being managed conservatively. Only 39% and 21.6% of the patients were referred to physiotherapy and occupational therapy, respectively. Majority (90%) of the referrals were from hospitalized patients. The median time taken to be seen by physiotherapist was 4 days, and by occupational therapist was 7.5 days.

DISCUSSION:
There was associated functional decline post VFF. With a quarter of cohort becoming more dependent, it highlighted the need to involve therapy services for patients with new VFF who present as inpatients and outpatients. Early rehabilitation is important to restore mobility and function.

CONCLUSION: A new diagnosis of VFF can result in loss of independence and functional decline. Local guidelines for rehabilitation must be developed for patients with newly diagnosed VFF to reduce deconditioning and dependency in addition to secondary prevention for to reduce future fracture risk.

REFERENCES:
1. International Osteoporosis Federation. Fragility Fractures.
2. Schousboe J. T. (2016). Epidemiology of Vertebral Fractures. *Journal of clinical densitometry : the official journal of the International Society for Clinical Densitometry*, *19*(1), 8–22.
3. Barton, D. W., Behrend, C. J., & Carmouche, J. J. (2019). Rates of osteoporosis screening and treatment following vertebral fracture. *The spine journal : official journal of the North American Spine Society*, *19*(3), 411–417.

UTILISATION OF HIP ABDUCTION BRACE TO MANAGE RECURRENT DISLOCATION IN POST-OPERATIVE HIP HEMIARTHROPLASTY PATIENT WITH DEMENTIA - A LESS INVASIVE YET RELIABLE APPROACH

[1]Najmi AG;[1]Ahmad Hanif KA;[1]Che Hamzah F;[1]Seri Masran M
1. *Arthroplasty Unit, Hospital Sultan Abdul Aziz Shah,Universiti Putra Malaysia*

INTRODUCTION:
Hemiarthroplasty is the preferred surgical intervention for neck of femur fractures in elderly patients. Managing post-operative dislocation in extreme age patients is challenging, particularly in those with dementia. We share a less invasive method for addressing recurrent post-operative dislocation in the extreme age group with dementia, employing a hip abduction brace.

REPORT:
An advanced dementia-afflicted 91-year-old woman, having undergone right hip bipolar hemiarthroplasty, experienced recurrent hip dislocation eight months' post-surgery following unintentional squatting movement. Despite multiple attempts at closed manipulative reductions and prolonged skin traction, the dislocation persisted, revealing a posterior acetabular wall fracture. Given the high surgical risk in extreme age, the decision was made to use a hip abduction brace. This brace effectively restricted adduction and internal rotation, improving the patient's and caretaker's ability to manage mobility, transfers, and wheelchair use. At the 6-week follow-up post-brace application, no evidence of hip redislocation was observed.
Managing post-operative recurrent hip dislocation in elderly individuals with advanced dementia proved to be a challenging task. In contrast to surgery, a hip abduction brace provides a non-invasive approach, minimizing the associated risks. The brace offers stability, aids in mobility, and reduces the likelihood of complications without subjecting the patient to the challenges and recovery associated with a surgical procedure.

CONCLUSION:
This case underscores the importance of tailoring interventions to challenges presented by elderly individuals, especially those with advanced dementia. Utilizing hip abduction brace not only proved to be a pivotal component in the management strategy but also showcased its simplicity and reliability in addressing the specific needs of this vulnerable elderly patient.

REFERENCES:
1. Piggott RP et al. Hip Hemiarthroplasty in Neurologic or Cognitively Impaired Patients. J Orthop Case Rep. 2018 Jan-Feb;8(1):18-22. doi:10.13107/jocr.2250-0685.980.PMID: 29854686; PMCID: PMC5974670.
2. Yoon et al (2006). Efficacy of the Preventive Abduction Brace in Dementia Patients After Bipolar hemiarthroplasty of the Hip. The Journal of the Korean Hip Society.18.189.10.5371/jkhs.2006.18.4.189.

Figure 1: Pelvic x-ray (AP view) shows posterior dislocation of right hip

Figure 2: Pelvic x-ray after 6 weeks of hip abduction brace

AGE-RELATED CHANGES IN CORTICAL ACTIVATION PATTERN AND GAIT VARIABLES DURING OBSTACLE NEGOTIATION WITH COGNITIVE TASK

[1]Gam, Byeong uk; [2]Yeo, Sang seok

1. *Department of Rehabilitation Medicine, Seoul National University Bundang Hospital, Gumi-ro 173beon-gil, Seongnam-si, Republic of Korea*
2. *Department of Physical Therapy, College of Health Sciences, Dankook University, 119, Dandae-ro, Dongnam-gu, Cheonan-si 31116, Chungnam, Republic of Korea*

INTRODUCTION:
Dual-task walking and encountering obstacles are commonly observed and are a primary factor in falls. prefrontal cortex (PFC), premotor cortex (PMC), supplementary motor area (SMA) are essential for gait control in dual-task walking and obstacle negotiation. Therefore, this study aims to investigate the patterns of activation in the PFC, PMC, SMA along with the spatiotemporal walking variables during obstacle negotiation with cognitive task.

MATERIALS & METHODS:
The participants were divided into three groups: young adults (YA), middle-aged adults (MA), and elderly adults (EA). Each participant randomly performed walking on treadmill (WT), obstacle negotiation on treadmill (OT), and obstacle negotiation with cognitive task on treadmill (OCT). During each task, gait parameter and cortical activation were measured using gait analyzer and fNIRS (functional near-infrared spectroscopy).

RESULTS:
During the OCT task, the EA group exhibited shorter stride length than the YA group ($p<0.05$). The EA group showed higher activation in the right PFC and SMA during the OCT task ($p<0.05$). The cerebral cortex activation was higher in the EA group compared to the YA or MA group ($p<0.05$). Furthermore, motion errors were observed in the EA group during the OCT task ($p<0.05$).

DISCUSSIONS:
EA group performed the OCT task, the activation of the right PFC and SMA was higher than WT task. This suggests that the OCT task is a demanding task for attention, executive function and inhibition ability.

CONCLUSION:
The EA group use a more stable strategy when performing the OCT task. The activity of the cerebral cortex was higher in the EA group than in the YA or MA groups. This suggests that the demands on the cerebral cortex increase in older adults to maintain task performance. The results of this study can be used as a basis for fall prevention.

REFERENCES:
Amboni, M., P. Barone, and J.M. Hausdorff, Cognitive contributions to gait and falls: evidence and implications. Movement disorders, 2013. 28(11): p. 1520-1533.

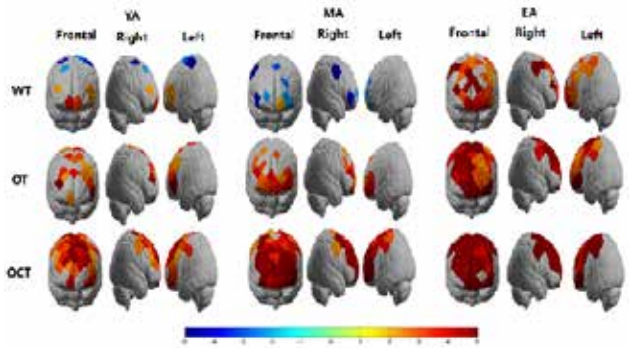


Figure 1: Cortical activation pattern by group during each task

STRATEGIES FOR ENHANCING INPATIENT INTENSIVE REHABILITATION IN FRAGILITY FEMORAL FRACTURE CASES REJECTING SURGERY FOLLOWING POST COVID-19 CRITICAL CARE

[1]Raden Givan Merandi Suganda; [1]Irma Ruslina Defi
1. *Department of Physical Medicine and Rehabilitation Hasan Sadikin General Hospital, Universitas Padjadjaran, Indonesia*

INTRODUCTION:
Fragility femoral fractures are common in the elderly and are often associated with significant morbidity and mortality. The COVID-19 infection has added complexity to the management of such cases. This case report presents the rehabilitation journey of a patient with a fragility femoral fracture compounded by COVID-19 critical illness who declined surgical intervention towards functional outcome in mobilization and respiration on fragility femoral fracture cases.

MATERIALS & METHODS:
A 72-year-old woman presented with an intertrochanteric fracture in the right femur region following a fall. Concurrently, she tested positive for COVID-19 and exhibited bilateral pneumonia, requiring intensive care and ventilator support. Despite recommendations for surgery, the family opted for non-operative management.

Initiated after stabilization, the patient underwent a tailored rehabilitation program, and consulted to Physical Medicine and Rehabilitation (PMR) department. Airway clearance techniques, including postural drainage, infrared rays, and chest wall vibration, were employed to mobilize secretions. Additionally, chest expansion exercises, deep breathing exercises, and effective coughing exercises were prescribed to improve respiratory function.

The rehabilitation program also focused on mobilization and posture training, starting with bed mobility exercises and progressing to functional training. Traction was applied to the right leg by the Orthopedic department to optimize alignment. Then we provide the strengthening exercises for upper extremities and left quadriceps were integrated into the regimen to maintain muscle function and prevent deconditioning, also with pain management. Furthermore, cardiopulmonary endurance training was initiated using an arm ergocycle, gradually increasing intensity and duration to enhance cardiovascular fitness while monitoring vital signs closely.

RESULTS:
The rehabilitation program implemented for respiratory impairment, incorporating postural drainage, infrared rays, and chest wall vibration, aimed at mobilizing secretions, yielded significant impact on patient improvement, ventilator weaning, and enhanced respiratory function. Furthermore, collaboration with various multidisciplinary fields ensured opportunities for patient mobilization within tolerance limits, while prioritizing safety to preserve muscle mass and function, thus mitigating adverse effects of prolonged immobilization

DISCUSSIONS:
Despite the absence of surgical intervention, the patient demonstrated significant improvement in respiratory function and functional mobility. Regular clinical meetings involving multiple specialties and family discussions facilitated shared decision-making and optimized patient care.

CONCLUSION:
This case underscores the importance of a multidisciplinary approach in managing fragility femoral fracture patients with COVID-19 critical illness who decline surgery. Tailored rehabilitation programs focusing on respiratory management, mobilization, posture training, and cardiopulmonary endurance can optimize functional outcomes and quality of life in such challenging cases. Further research is warranted to explore the long-term effects and outcomes of non-operative management in this population.

NEGLECTED FEMORAL NECK FRACTURE IN A MALNOURISHED ELDERLY PATIENT WITH PARKINSON'S DISEASE - A CASE REPORT STUDY

Awab Zakie Habibie[1], Farida Arisanti[1], Rachmat Zulkarnain Goesasi[1], Irma Ruslina Defi[1]
1. Physical Medicine & Rehabilitation, Padjadjaran University, Bandung, Indonesia

INTRODUCTION:
We present the case of a 74-year-old female patient who was unaware of a left femoral neck fracture when he fell. In this case report, the difficulties with diagnosing fractures in elderly patients with comorbidities such as malnutrition and Parkinson's disease are highlighted.

SUBJECTS AND METHODS:
The patient had fallen nine days prior while walking, resulting in left-sided hip pain and reluctance to move her left leg. Despite conservative management, her condition deteriorated, prompting hospital admission. Notably, the patient had a 20-year history of Parkinson's disease. Further examination revealed malnutrition with low scores on the Mini Nutritional Assessment (MNA), SARC-F, and SARF-CALF scales, compounded by anemia and electrolyte imbalance. After two weeks of general improvement, the patient underwent open reduction and internal fixation (ORIF) with proximal femoral nail autorotation (PFNA).

The goal of the rehabilitation program was early post-operative mobilization; however, the patient experienced pain during movement and delayed wound healing, with a score of 6 on the Numeric Rating Scale (NRS). Pain perception dropped to two when Transcutaneous Electrical Nerve Stimulation (TENS) was applied. The regimen comprised breathing exercises, chest expansion, turning every two hours, mobilization up to 80 degrees, and a transition to mobility outside of the bed.

RESULTS:
Nutritional interventions resulted in improvements in malnutrition parameters, with the patient achieving a higher score on MNA. The patient demonstrated significant improvements in functional status and pain.

DISCUSSIONS:
This example highlights the value of multidisciplinary care for older individuals who have fractures, particularly when such people have underlying illnesses such as Parkinson's disease (PD) and malnourishment. People with Parkinson's disease (PD) are significantly more likely to sustain a fragility fracture, particularly one of the hip due to a delayed ability to quickly abduct their arms in a protective manner during a fall.[1] For the most successful outcomes in this susceptible demographic, early detection, nutritional support, and customized rehabilitation are essential.

CONCLUSIONS:
To reduce problems and speed up healing, it is critical to identify and treat femur neck fractures in older patients with Parkinson's disease and comorbidities such malnutrition as soon as possible. Malnutrition significantly increases the risk of adverse medical events in the elderly population with femoral fragility fractures.[2] Comprehensive therapy for this patient must incorporate multimodal rehabilitation techniques, such as progressive mobilization and pain control approaches.

FRAGILITY FRACTURES OF THE HIP IN LOWER LIMB AMPUTEES: A CASE SERIES

[1]Lee,Hwee Ming; [2]Lim,Wan Chieh
1. *Rehabilitation Medicine Department, Hospital Taiping, Malaysia*
2. *Geriatrics Unit, Hospital Taiping, Malaysia*

INTRODUCTION:
Falls occur once or more each year in more than half of community dwelling adults with a lower limb amputation (LLA)[1]. After prosthesis warranty expires after 1 year, majority are discharged from follow-up. LLAs result in lower hip Bone Mineral Density (BMD) increasing risk of osteoporosis and fragility fractures[2]. Involvement of the multidisciplinary team, early fractured hip surgical fixation, early post-operative mobilisation and falls risk assessment are important in fragility fracture care[3]

MATERIALS & METHODS:
3 patients with LLA (2 male- first prosthetically restored 1990, second prosthetically restored 2023 and 1 female-prosthetically restored 2018) sustained Hip Fracture, underwent surgical fixation at 48 hours,Day 5 post-trauma and Day 20 post trauma. All 3 received pre-operative multidisciplinary team consultation. Falls assessment identified prosthetic malfunction as cause of fall in 2 cases but not in the third.

RESULTS:
Early surgical fixation enabled by multi-disciplinary approach permitted earlier ambulation with prosthesis. Malfunctioning prosthesis were replaced and most recent review, all patients were prosthetically ambulating in community.

DISCUSSIONS:
Early surgical fixation and multi-disciplinary approach to fragility fractures enabled both LLA patients to be prosthetically restored earlier thus decreasing the risk factors of immobility. As adults with LLA have higher risk for fragility fractures, osteoporosis screening and prevention in this group should be considered.

CONCLUSION:
All adults with LLA should have regular follow-ups, falls risk assessment, and be considered for osteoporosis screening. More studies are required to determine feasibility for the above interventions.

REFERENCES:
1. Miller WC, Speechley M, Deathe B. The prevalence and risk factors of falling and fear of falling among lower extremity amputees. Arch Phys Med Rehabil 2001;82:1031–7. doi:10.1053/apmr.2001.24295.
2. S. Haleem, S. Yousaf, T. Hamid et al., Characteristics and outcomes of hip fractures in lower limb amputees, https://doi.org/10.1016/j.injury.2020.10.017.
3. National Institute for Health and Care Excellence. *Quality standard for hip fracture care. NICE Quality Standard 16 (update).* London 2017.

Figure 1: Hip X-ray of Long PFN

Figure2: Hip X-ray of DHS

COMPARISON OF OSTA, FRAX, BMI AND PIO IN PREDICTING OSTEOPOROSIS AMONG OLDER FILIPINO PATIENTS SEEN AT NATIONAL CENTER FOR GERIATRIC HEALTH, SAN MIGUEL, MANILA

Tansiongco, Venjune P.[1], Merced, Claudine Marie A.[1], Jiloca, Jose Leo V.[1], Gatpatan, Jhoanne Marsh[2]
1. *Jose R. Reyes Memorial Medical Center*
2. *University of the Philippines Visayas*

INTRODUCTION:
Osteoporosis has posed a great burden to elderly age group. Several osteoporosis screening tools have been developed to augment the limited access to Bone DXA especially in the rural community.

OBJECTIVE:
This study was conducted to compare the efficacies of commonly used osteoporosis screening tools (Osteoporosis Self – Assessment Tools for Asian (OSTA), the Fracture Risk Assessment tool (FRAX) without Bone mineral densitometry (BMD), the Predictive Index for Osteoporosis (PIO), and the Body mass index (BMI)) in predicting osteoporosis among elderly Filipino population.

METHODOLOGY:
An out-patient based cross-sectional cohort study was conducted from April 2023 to September 2023. Data from 149 older Filipinos were collected. Descriptive statistics was used for the demographic and clinical characteristics of the patients. Comparative statistical analysis was done to determine the predictive efficacies of the screening tools.

RESULTS:
The prevalence of osteoporosis using the WHO criteria, hip, lumbar spine and femoral head are 76.5%, 38.3%, 63,8%, 63,8% respectively. The AUC values of the tools for predicting osteoporosis according to the five diagnostic criteria ranged from 0.728 to 0.822 (OSTA), 0.668 to 0.713 (BMI), 0.635 to 0.678 (FRAX MOF), 0.653 to 0.722 (FRAX HF), and 0.676 to 0.790 (PIO). Using the WHO criteria, the OSTA and the PIO had the highest AUC values, 0.803 and 0.743 respectively. The lower threshold was set at -2 for OSTA, 24kg/m2 for BMI, 3.05% for FRAX MOF, 1.05% for FRAX HF, and 1.255 for PIO.

CONCLUSION:
Osteoporosis is highly prevalent among older Filipinos. OSTA is most qualified and reliable tools in distinguishing osteoporosis among older Filipinos, followed by FRAX HF and PIO. BMI showed the least among these tools. Older Filipino with OSTA of < -2, FRAX HF of >1.05%, or PIO of > 1.255 should undergo BMD measurement to screen for osteoporosis. With the identification of the optimal threshold, the unnecessary radiation exposure and economic cost from BMD testing could be reduced.

	Value	Range
Age	73.66 + 6.2	60 – 91
Old **Middle Old** **Old old**	43 (29%) 84 (56%) 22 (15%)	
Sex (Female)	116 (78%)	-
BMI	24.29 ± 4.67	14.10 – 38.82
Weight	54.45 ± 11.31	30 – 84
Height	149.66 ± 8.02	134 – 175
Note: For quantitative characteristics, mean ± SD was inputted. For qualitative characteristics frequency and percentage was computed.		

Table 1: Characteristics of Participants (N = 149)

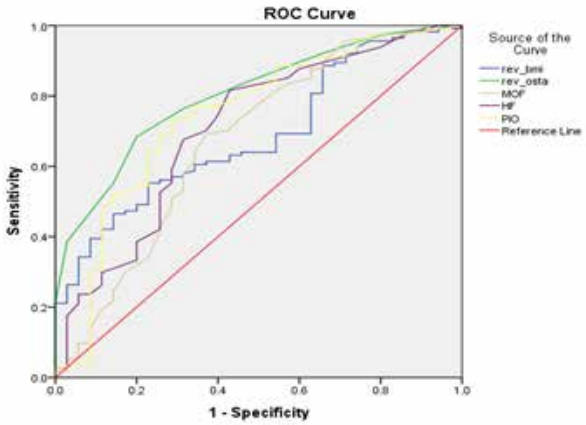


Figure 1: Comparison of different AUCs (OSTA, BMI, FRAX-HF, FRAX-MOF and PIO for identifying Osteoporosis) according to the WHO criteria.

EVALUATING THE IMPACT OF EXTENDED FASTING ON OUTCOME AMONG HIP FRACTURE PATIENTS

Yeat Nai Shan[1] Terence Ong[1]
1. *Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia*

INTRODUCTION:
Hip fractures are common among older people and necessitate surgical intervention. Longer fasting time pre-operatively is associated with worse outcomes. This project aims to access the impact of extended fasting on outcomes among hip fracture patients.

MATERIALS & METHODDS:
This study included patients aged ≥ 65 years who underwent hip fracture surgery in a tertiary centre between 1.1.2023- 31.7.2023. Data was retrospectively extracted from the electronic medical records and analyzed descriptively. The cut-off to define prolonged fasting duration was made using the median fasting duration.

RESULTS:
A total of 75 patients were included, with 81.3% (n=61) being women and 18.7% (n=14) men. For underlying comorbidities, 44% (n=33) had diabetes mellitus, 70.7% (n=53) hypertension, 41.3% (n=31) dyslipidemia, 18.7% (n=14) chronic kidney disease, 13.3% (n=10) dementia, 4% (n=3) has congestive cardiac failure, and 14.7% (n=11) had ischemic heart disease. 56% (n=42) sustained an intertrochanteric fracture, 40% (n=30) a neck of femur fracture while 3.9% (n=3) had either pertrochanteric or subtrochanteric fracture. 41.3% (n=31) underwent prosthesis surgery, while 58.7% (n=44) received some form of osteosynthesis surgery. The median fasting duration was 8.17 hours; thus, an eight-hour threshold was used. 56% (n=42) patients fasted for ≥8 hours, while 44% (n=33) fasted for <8 hours. Among observed complications for fasted <8 hours vs ≥ 8 hours, acute kidney injury, 37.5% (n=3/8) vs 62.5% (n=5/8) (p=0.729); infection, 22.2% (n=2/9) vs 77.8% (n=7/9) (p=0.283); pulmonary embolism, 50% (n=2/4) vs 50% (n=2/4) (p= 1.000); delirium, 26.7% (n=4/115) vs 73.3% (11/15) (p=0.156); inpatient mortality, 0% vs 100% (n=3) (p=0.251); ambulation on the first day post operation, 58% (18/31) vs 42% (13/31) (p=0.059); readmission rate 75% (n=9/12) vs 25% (n=3/12) (p=0.026). There was only a single case of return to theatre involving a patient who fasted for ≥8 hours (p=1.000).

DISCUSSION & CONCLUSION:
There is a trend towards increase inpatient complications with longer fasting time (≥ 8 hours). However, findings were likely compounded by the small sample size. Further research is required into this as it has huge clinical significant on providing good hip fracture care.

OSTEOPOROSIS CARE GAP IN BRUNEI DARUSSALAM

Tripathi Sanjeev, Yakob Abdul Hafidz, Pande Ketan
Orthopaedic Department, Raja Isteri Pengiran Anak Saleha Hospital, Brunei Darussalam

INTRODUCTION:
By 2050, the number of hip fractures will increase 2.3 fold in Asia Pacific.[1]Surgical delay of > 48 hours is associated with increased morbidity and mortality.[2] OrthoGeriatric model of care is now established and comprehensive assessment including fall risk assessment is recommended together with Secondary prevention under Fracture Liaison Service (FLS).[1] The objective of this study was to assess the delay in surgery, evaluation by a Multi-disciplinary team (MDT) during inpatient stay and use of DXA and use of medication for management of osteoporosis in patients with hip fractures.

MATERIALS & METHODS:
In a retrospective study of hip fracture patients admitted to a tertiary care hospital between 1 Jan 2022 and 31 Dec 2022, electronic medical records were reviewed to record the time to surgery, evaluation by MDT, use of DXA and osteoporosis medication prescription at discharge and at 6 and 12 months.

RESULTS:
A total of 66 patients were admitted with hip fracture during the study period. Surgery was performed in 64 patients with a median delay of 6 days (range 2-28 days). MDT assessment including fall prevention was done for 86% of patients. Only 13 patients had undergone DXA after discharge. At discharge 84% of patients were prescribed osteoporosis medications (Calcium, Vit D and/or Bisphosphonate). At 6 and 12 months followup, only 48.5% and 33.3% of patients respectively were still on the medications.

DISCUSSIONS:
Our time to surgery does not meet the recommended standards for various reasons. However, a steady increase in patients undergoing MDT assessment has been noted since the start of OrthoGeriatric Service. Similar to our findings, Osteoporosis Care Gap with respect to use of DXA and medications has been recognized across Asia Pacific and Europe.[3,4]

CONCLUSION:
Care gap in management of patients with hip fracture during admission and after discharge has been identified. Efforts are on through steps like formation of FFN and FLS in Brunei Darussalam to address this gap.

REFERENCES:
1. https://doi.org/10.1007/s00198-019-05197-y
2. https://doi.org/10.1530/EOR-22-0060
3. https://doi.org/10.1007/s11657-022-01153-2
4. https://doi.org/10.1007/s11657-021-00969-8

CHARACTERISTICS OF FRAGILITY HIP FRACTURE-RELATED FALLS IN THE ELDERLY POPULATION: A SYSTEMATIC REVIEW

[1]Younji Kim; [2]Seung-Kyu Lim; [3]Jae-Young Lim
1. *Department of Rehabilitation Medicine, Ewha Woman's University Seoul Hospital, Seoul, Korea*
2. *Department of Rehabilitation Medicine, Soonchunhyang University Cheonan Hospital, Cheonan, Korea*
3. *Department of Rehabilitation Medicine, Seoul National University Bundang Hospital, Seongnam, Korea*

INTRODUCTION:
With the global aging trend, the incidence of falls and hip fractures is projected to rise, leading to an increased associated burden.[1] Over 90% of hip fractures result from falls, yet not all falls cause fractures, suggesting specific fall characteristics may contribute to hip fractures. [2]
This review provides insights into fragility hip fracture-related falls among the elderly, aiding in understanding and developing effective fall prevention strategies for this population.

MATERIALS & METHODS:
Searches encompassed PubMed, OVID, EMBASE, Cochrane Library, and Web of Science, supplemented by citation checks. We included non-randomized studies detailing characteristics of fragility hip fracture-related falls in the elderly, with or without a non-hip fracture control.

RESULTS:
A total of 30 articles were reviewed, comprising 23 non-case control and 7 case-control studies, with a mean age of 75.6 years.
Hip-fracture related falls typically occur indoors at or around standing height during daytime, often involving sideways or backward motions with inadequate protective responses. Slipping is predominant, yet lost balance and weakness/ collapse are notable. Walking precedes many falls, but stationary activities (lack of forward motion, changing positions, sitting or standing still, transfer) also contribute. Low usage of walking aids and impact on hard surfaces are common features of these falls.

CONCLUSION:
This review underscores fall characteristics associated with fragility hip fractures in older adults, highlighting features more aligned with age-related physical frailty than general falls. Such insights can guide healthcare providers in implementing tailored interventions to reduce hip fractures and related challenges.

REFERENCES:
1. Wu, Ai-Min, et al. "Global, regional, and national burden of bone fractures in 204 countries and territories, 1990–2019: a systematic analysis from the Global Burden of Disease Study 2019." The Lancet Healthy Longevity 2.9 (2021): e580-e592.
2. Grisso, Jeane Ann, et al. "Risk factors for falls as a cause of hip fracture in women." New England journal of medicine 324.19 (1991): 1326-1331.

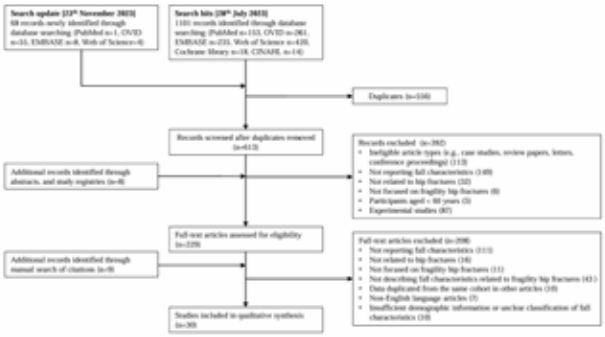


Figure 1: Flow chart of the article inclusion process

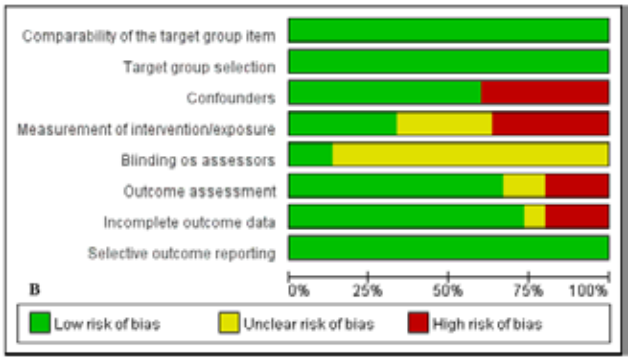


Figure 2: Risk of bias appraisal using RoBANS2

A SINISTER CASE OF LOW BACK PAIN WITH RADICULOPATHY ARTHROPLASTY IN NON-HODGKIN B-CELL LYMPHOMA

[1]Abd Rahim, Mohd Zuhail; [1]MK. Nadia; [1]AA. Aziah; [1]A. Anuar
1. Orthopaedic Department, Hospital Cyberjaya, 63000 Cyberjaya, Selangor

INTRODUCTION:
Low back pain (LBP) with radiculopathy usually associated with lumbar disc herniation. LBP and radiculopathy as the first symptoms and signs in primary bone lymphoma is rare, occurring in less than 1% of patients. The purpose of this case report is to describe the deceiving presentation and the diagnostic journey of a patient with LBP and radiculopathy in primary bone lymphoma.

REPORT:
86-year-old gentleman visited Emergency Department six times complaining of LBP and right buttock pain. Examination revealed limited external rotation and extension of the hip. Lumbosacral radiograph shows hypertrophy of the L5 transverse process abutting the iliac crest. Pelvic radiograph was unremarkable. He was treated for musculoskeletal pain secondary to Bertolotti Syndrome.

One month later, patient presented with worsening LBP and buttock pain radiating to right proximal thigh with reduced hip range of motion and tenderness at lower lumbar spine.

The right hip flexion and knee extension muscle power, and sensation right L1-S1 was reduced. Magnetic resonance imaging (MRI) of the lumbosacral spine shows L5/S1 annular tear but no significant spinal canal stenosis.

Repeated pelvis radiograph noted right neck of femur fracture thus right bipolar hemi-arthroplasty performed. Intraoperatively, the capsule was thickened with a contained defect of the acetabulum. Femoral head and neck bone consistency were soft and friable while distal to trochanteric region was normal. Histopathological examination (HPE) sent for assessment.

Result shows diffuse large B cell lymphoma thus patient referred to Hematology Department for management.

At 5 months follow up, patient ambulating independently with tolerable pain, and completed 6 cycles of chemotherapy. Hip flexion was 0- 110 degrees while extension up to 30 degrees.

CONCLUSION:
Primary bone lymphoma is a rare occurrence. The deceiving presentation of LBP and radiculopathy ushered the investigation towards spine when in fact it was a hip pathology. This is a reminder to always be suspicious when clinical findings and investigations do not coincide.

REFERENCES:
1. Roug IK, J Chiropr Med. 2012 Sep;11(3)
2. Vadivelu R, Arch Orthop Trauma Surg. 2002 Dec;122(9-10

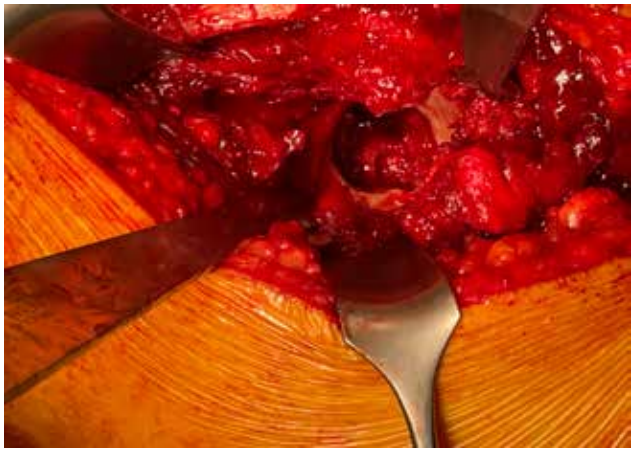


Figure 1: Contained acetabular defect

PREVALENCE AND DISTRIBUTION OF OSTEOPOROTIC HIP FRACTURE PATIENTS UNDERGO SURGERY IN A MALAYSIAN TERTIARY HOSPITAL

[1]Shohor N.A, [1]Jeyakumar S, [1]Leong J.F, [1]Rani R.A, [1]Mokhtar S.A
1. *Fracture Liaison Service/ Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
Hip fragility fractures represent a significant health issue in Malaysia, often resulting from low-impact incidents like falls. With the aging demographic, there's a growing demand for orthopedic interventions among those afflicted with osteoporosis

MATERIALS & METHODS:
Throughout the duration spanning from January to December 2023, we conducted a prospective study targeting elderly individuals aged 55 years and above who presented with fragility hip fractures at our hospital. These patients were identified with the assistance of our diligent Fracture Liaison Service Coordinators. Exclusion criteria were applied to individuals with severe trauma, malignancy, or fractures induced by steroid use. The study rigorously documented demographic details, medication prescriptions, and surgical interventions for comprehensive analysis.

RESULTS:
A total of 150 patients were documented, with a median age of 76 years. Among these individuals, 74% underwent surgical interventions for their hip fractures, while the remaining 26% were treated conservatively. Among those who opted for surgery, 48% sustained fractures of the neck of the femur, whereas 42% experienced intertrochanteric fractures. Furthermore, surgical procedures were performed within varying timeframes: 35% within 72 hours following admission, 42% between four to seven days post-admission, and 23% after one week of admission. The delay in surgical intervention was predominantly attributed to the unstable medical condition of the patients.

CONCLUSION:
The incidence of osteoporotic hip fractures requiring surgical intervention remains notably elevated. Factors such as financial constraints, advanced age, or underlying medical conditions often influence patients' decisions to forgo surgery. Recognizing the multifaceted challenges, individuals with osteoporosis demand meticulous pre- and postoperative care plans, coupled with advancements in surgical equipment and techniques to enhance treatment efficacy.

COMMUNICATION ATTITUDE AMONG REGISTERED NURSES IN UNIVERSITY HOSPITAL

[1,2,3] Shohor NA; [1]Zainudzin SA; [1]Mohd Azhar SN; [3]Leong JF; [3]Mokhtar SA; [3]Jeyakumar S; [4]Abdul Hamid MR

1. *Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam Campus, Selangor, Malaysia*
2. *Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*
3. *Fracture Liaison Service, Department of Orthopedics and Traumatology, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia*
4. *Universiti Malaya Medical Centre, Kuala Lumpur, Malaysia*

INTRODUCTION:
Communication skills among nurses are a vital component, and a good communication attitude between nurses and patients is proven to significantly impact the standard and quality of patient care, including orthopedic patients.

MATERIALS & METHODS:
A cross-sectional study was conducted among 508 registered nurses with more than six months of working experience who provide direct nursing care at the University Malaya Medical Centre (UMMC). The data was collected using self-administered questionnaires consisting of socio-demographic data, 15 items from the Communication Skills Attitude Scale (CSAS), and 12 items from the Perceived Importance of Medical Communication (PIMC). Data was analyzed using the IBM Statistical Package for Social Sciences (SPSS).

RESULTS:
The results of this study showed that 79.5% (n=404) of the nurses have good communication skills, 19.1% (n=97) show moderate, and only 1.4% (n=7) respondents have poor communication skills. In addition, the majority, 95.5% (n=485) of nurses, have a high perceived importance of communication during working in the hospital. 3.3% (n=17) were moderate, and only 1.2% (n=6) of the total respondents stated that communication is not important.

DISCUSSIONS:
A study by Kounenou, Aikaterini, and Georgia (2011) stated that communication skills courses should be obligatory during nursing training to increase the sense of responsibility to improve communication. Previous data from the same data collection setting showed that customer satisfaction in UMMC increased from 76.1% to 97.6%. It shows that increasing customer satisfaction in patient care may come from good communication skills by health care professionals, including nurses, who are the biggest task force in the health care system.

CONCLUSION:
Good communication skills between nurses and patients, nurses and family members, and nurses with the community help improve lifestyles and compliance with treatment.

REFERENCES:
Kounenou, K., Aikaterini, K., & Georgia, K. (2011). Nurses' communication skills: Exploring their relationship with demographic variables and job satisfaction in a Greek sample. *Procedia - Social and Behavioral Sciences*, *30*, 2230–2234. https://doi.org/10.1016/j.sbspro.2011.10.435

COMMENCEMENT OF ANTI-OSTEOPOROSIS MEDICATION, CALCIUM AND VITAMIN D SUPPLEMENTATION FOR FRAGILITY FRACTURE PATIENTS AND THEIR ADHERENCE FOR 6 MONTHS

[1]Jeyakumar S, [1]Leong J.F, [1]Shohor N.A, [2]Yin M.K, [1]Rani R.A, [1]Mokhtar S.A
1. *Fracture Liaison Service/ Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*
2. *Pharmacological Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
Osteoporosis is a condition characterized by excessive bone loss and significant public health issues for elderly men and women. Adherence to medication for osteoporosis patients has become a challenge since those medications are required for the long term. Similar to other chronic diseases such as hypertension and diabetes, osteoporosis has struggled with suboptimal medication adherence, resulting in more fractures and all-cause mortality in elderly people.

MATERIALS & METHODS:
Throughout the period of January to December 2023, patients sustained fragility fractures initiated on osteoporosis-related treatment were consistently monitored by the Fracture Liaison Service (FLS) Coordinator. The adherence to prescribed calcium, vitamin D, and anti-osteoporotic medications was assessed after the completion of a six-month treatment period for patients enrolled from January 2023 to July 2023.

DISCUSSIONS:
A total of 232 fragility fracture patients were assessed and counseled by the Fracture Liaison Service (FLS) regarding their anti-osteoporosis medications, calcium, and vitamin D intake. Among those consulted, 75% consented to receive anti-osteoporotic medication, while the remaining 25% declined, citing financial constraints and existing polypharmacy as the primary reasons for refusal. The majority of patients were prescribed antiresorptive (93%) followed by anabolic treatment (7%). Additionally, 95% of the total patients were prescribed calcium and vitamin D supplements.

Assessing compliance over a six-month period for patients enrolled from January to July 2023 revealed encouraging results. A noteworthy 93% of patients adhered to their anti-osteoporosis medications, while 97% maintained compliance with their prescribed calcium and vitamin D supplements throughout the duration of the follow-up.

CONCLUSION:
Improving compliance with anti-osteoporosis treatment requires the implementation of effective pharmacological management strategies. Collaborative efforts among healthcare professionals from various disciplines can greatly benefit individuals with osteoporosis. The establishment of Fracture Liaison Services (FLS) is a crucial initiative aimed at early intervention and ensuring patient compliance, thereby playing a vital role in optimizing patient care and treatment outcomes.

INCIDENCE AND DISTRIBUTION OF DIFFERENT TYPES OF ANTI-OSTEOPOROTIC MEDICATIONS AMONG HIP FRACTURE PATIENTS

[1]Jeyakumar S, [1]Leong J.F, [1]Shohor N.A, [2]Yin M.K, [1] Rani R.A, [1]Mokhtar S.A

1. *Fracture Liaison Service/ Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*
2. *Pharmacological Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
Medication stands as a viable treatment option for combating osteoporosis, in alignment with the directives issued by the National Osteoporosis Foundation (NOF). This course of action is recommended if any of the following conditions are met after eliminating secondary causes of osteoporosis: the occurrence of low-impact fractures in the hip, spine, or wrist; a bone mineral density (BMD) score displaying a T-score of ≤ -2.5 at critical sites like the femoral neck, total hip, or lumbar spine. Furthermore, individuals classified within the osteopenia range (T-score between -1.0 and -2.5) may warrant medication if their FRAX score surpasses 3% for hip fracture risk or 20% for major osteoporotic-related fracture risk.

MATERIALS & METHODS:
This prospective study, spanning from January to December 2023, focused on elderly individuals aged 55 years and above who presented with hip fractures at our hospital, as identified by the dedicated Fracture Liaison Service Coordinators. Excluding cases of severe trauma, malignancy-associated fractures, and steroid-induced fractures, the study recorded demographic information, medication prescriptions, and surgical data for analysis.

RESULTS:
A total of 119 patients who sustained hip fractures were noted to be using anti-osteoporotic medications. Among them, 93% were prescribed anti-resorptive medications, while the remaining 7% received anabolic anti-osteoporotic treatments. Denosumab emerged as the predominant choice, being preferred by 72% of patients, followed by Fosamax at 21%, Teriparatide at 4%, and Romosozumab at 3%.

DISCUSSION:
Denosumab stands out as the most prescribed medication among hip fracture patients, primarily due to its perceived convenience. Given that many of our hip fracture patients have multiple comorbidities and taking several medications, Denosumab offers a simpler treatment regimen. Denosumab is also found to have better compliance compared to other medications among elderly age group. Additionally, patients often find Denosumab more affordable compared to anabolic medications like Teriparatide and Romosozumab. Moreover, Alendronates, a common alternative, are contraindicated in individuals with gastritis and underlying kidney issues, further bolstering Denosumab's preference.

CONCLUSION:
In our hospital setting, we observed a preference among patients for parenteral administration over oral intake. This preference is attributed to the perceived convenience and better compliance associated with parenteral administration, as reported by patients.

QUALITY OF LIFE MEASURED WITH SARQOL QUESTIONNAIRE WITH SARC-F SCREENING TOOL FOR SARCOPENIA IN THE ELDERLY

Narawit Kananai[1], MD, Atiporn Therdyothin[1], MD, Tanawat Amphansap[1], MD
1. *Department of Orthopedics, Police general hospital, Bangkok, Thailand*

INTRODUCTION

Sarcopenia is a medical condition characterized by progressive loss of skeletal muscle mass and strength, leading to higher risk of fragility fractures, lower quality of life (QOL), and mortality. Initial screening for sarcopenia includes a simple questionnaire called "SARC-F". This research aimed to measure the QOL with SarQol questionnaire applied with SARC-F screening tool.

MATERIALS & METHODS

A prospective cohort study was performed in 86 Thai community-dwelling elderly. The participants were categorized into 2 groups: 1. low risk for sarcopenia (SARC-F<4) and 2. high risk for sarcopenia (SARC-F≥4). The high-risk group were categorized into 3 subgroups, 2.1 Robust handgrip strength, 2.2 Low handgrip strength but robust physical performance, and 2.3 Low handgrip strength and low physical performance. We evaluated QOL in each group using SarQol and EQ-5D.

RESULTS

The high-risk group was significantly older (66.6 ± 1.82 vs 70.7 ± 3.59 years, P < 0.001). The mean total SarQol scores were 75.3 ± 4.37 in low-risk group and 50.5 ± 7.01 in high-risk group (P < 0.001), which were parallel with EQ-5D score (0.747 ± 0.108 vs. 0.383 ± 0.156, P < 0.001).

Within the high-risk group, participants with robust handgrip strength exhibited significantly better SarQoL score (59.2 ± 3.93) compared to those with poor handgrip (47.7 ± 1.82 in subgroup 2 and 44.8 ± 2.82 in subgroup 3, P < 0.001). The result was the same for QOL measured by EQ-5D.

DISCUSSIONS

SARC-F can distinguish elderly with high and low QOL as confirmed by both SarQol and EQ-5D, and can be applied in clinics and community screening. Hand grip strength is also a strong predictor of QOL, and should be a target for intervention.

CONCLUSION

Individuals at high risk of sarcopenia exhibited lower QOL. Grip strength is a crucial parameter in both assessing sarcopenia and determining QOL.

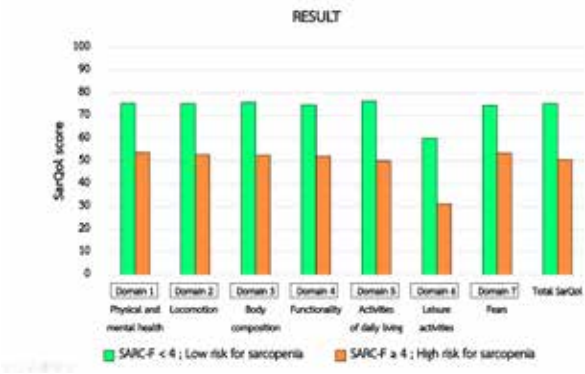


Figure 1: SarQol score in high- and low-risk group

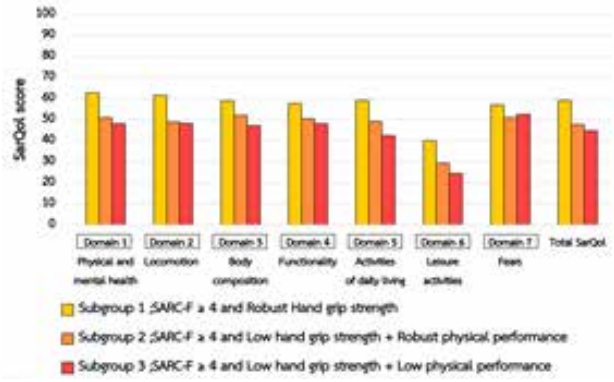


Figure 2: SarQol score in subgroups of high-risk group

ALENDRONATE ADHERENCE AND ITS ASSOCIATION FACTORS: AN AUDIT OF FRACTURE LIAISON SERVICE (FLS) IN HOSPITAL SULTAN ISMAIL, JOHOR BAHRU

[1]Yap SY; [1]Chong MN; [1]Othman E; [1]Ramdan K; [2]Loh AY; [2]Tiong WJ; [2]Yap HK; 2Lim SC; [2]Looi JS; [2]Ng CC; [2]Lim HT
1. *Pharmacy Department, Hospital Sultan Ismail, Johor Bahru*
2. *Internal Medicine Department, Hospital Sultan Ismail, Johor Bahru*

INTRODUCTION

Fragility fractures caused significant morbidity and mortality. Given FLS is the standard of care for secondary fracture prevention, optimal adherence to anti-osteoporosis treatment is the key for its effective outcomes. We aim to audit Alendronate, the most common anti-osteoporosis drug used in FLS in our institute and factors associated with its adherence.

METHODS

This a study of retrospective analysis for fragility fracture patients age more than 60 years old admitted to orthopedic ward and reviewed by geriatric team between July 2022 and December 2023. We used pharmacy dispensing records and electronic medical records (EMR) for data extraction. Patient's adherence towards Alendronate was measured using medication possession ratio (MPR) for 6 months. MPR ≥0.8 is considered satisfactory adherence. Statistical analysis was performed by SPSS. Association were analyzed by Chi-square where significance defined as *p*-value <0.05. Cases which Alendronate initiated out of the study period were excluded.

RESULTS

173 cases were admitted during study period. 77% were female with mean age of 77±8 years. Total of 101 cases (58%) were started on Alendronate upon discharged or during subsequent clinic follow up. Only 21 patients (21%) showed MPR ≥0.8. Among 21 patients who adhere to Alendronate, 95% were female patients.

Discussion

The present study reported only a fifth of those initiated Alendronate showed satisfactory adherence by 6 months follow-up. Male patients less likely adhered to Alendronate than female patients, which is similar with other reported studies. [1,2] Since risk of subsequent fracture and mortality is also higher in male patients, their adherence has to be emphasized.[3] Ensure routine scheduling of FLS clinic appointment post discharge is vital to address poor adherence.

CONCLUSION

Our study showed suboptimal adherence to Alendronate among FLS patients. This highlights the importance of multi-component adherence intervention, including promotion of FLS among health care providers.

REFERENCES

1. Kanahori M, Matsumoto Y, Fujiwara T et al (2021). Predictive factors of non treatment and non persistence to osteoporosis medication after fragility hip fractures at 3 years after discharge: a multicentre, prospective cohort study in the northern Kyushu district of Japan. Arch Osteoporos 16:132.
2. Tomoko F, Takahiro M, Jun K et al (2023). Factors associated with non-initiation of osteoporosis pharmacotherapy after hip fracture: analysis of claims data in Japan. Archives of Osteoporosis 18:103
3. Kannegaard PN, Mark SV, Eiken P et al (2010). Excess mortality in men compared with women following a hip fracture. National analysis of comedications, comorbidity and survival. Age Aging 39(2):203-9

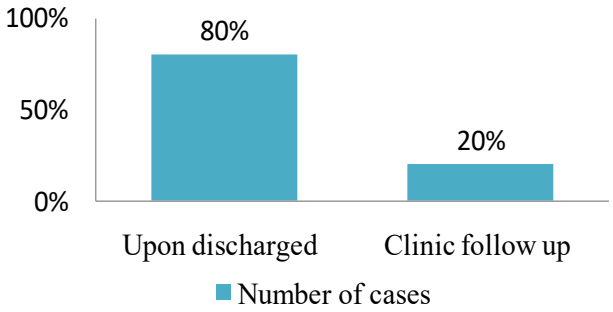


Figure 1: Timing of Alendronate initiated

Reason	Number of cases (Total N = 80)	Percentage (%)
Defaulted or not scheduled FLS clinic	69	86
Medication discontinued during FLS clinic	6	8
Alteration of pharmacotherapy or withhold treatment for dental clearance	2	2
Mortality	3	4

Table 1: Reason of poor adherence (MPR < 0.8%)

Factors association with patient's adherence	MPR ≥ 0.8 %	MPR < 0.8%	*p*-value
	Number of cases		
Gender- Female	20	57	0.02
Received inpatient medication counseling	8	37	0.80
Medication reviewed by pharmacist during 1st FLS clinic	8	17	0.43

Table 2: Factors associated with patient's adherence

THE PREVALENCE AND IMPORTANCE OF FRAILTY IN A REGIONAL AUSTRALIAN INPATIENT COHORT

[1,2]Hinchliffe L; [1]Spiegel C; [1,3]Clarkson L; [1,3,4]Khoo T K

1. *Ballina District Hospital, Northern New South Wales (NSW) Local Health District, Ballina, NSW, Australia*
2. *School of Medicine, Oceania University of Medicine, Apia, Samoa*
3. *School of Medicine & Dentistry, Griffith University, Queensland, Australia*
4. *Graduate School of Medicine, University of Wollongong, NSW, Australia*

INTRODUCTION:
We report the findings of an observational study conducted at Ballina District Hospital, Australia. Aims include the assessment of frailty in acute medical inpatients and associated factors at time of patient admission and discharge.

MATERIALS & METHODS:
Participants were assessed on admission and discharge between 16/09/2022 and 01/12/2023. Frailty was assessed via the Clinical Frailty Scale (CFS) and average handgrip strength (HGS) measured on admission and time of discharge. Comorbidity was assessed by the Charlson Comorbidity Index (CCI). Other variables of interest included Body Mass Index (BMI), estimated glomerular filtration rate (eGFR), serum albumin level, haemoglobin and length of inpatient admission (stay) (LOS).

RESULTS:
A total of 143 individuals comprising of 71 males and 72 females were assessed. Cohort demographics are summarised in Table 1.

Both frailty measures comprising the CFS and average HGS on Admission were associated with increasing age, lower BMI and reduced eGFR. Based on a CFS score ≥6, 50/143 (35.0%) of the cohort had moderate frailty or more. There was an inverse association between average HGS on Admission and LOS (p=.008), and a positive association between CFS and LOS (p=.005). Subgroup analysis by gender indicated an association between Average HGS on Admission and LOS that was present in males (p<.001) but not in females (p=.107). There was no association between CFS and average HGS on Admission with the CCI score.

DISCUSSION:
With approximately a third of acute medical inpatients defined to have moderate frailty or more, this study found frailty may be a better predictor of longer LOS when compared to co-morbidities and commonly assessed lab tests such as haemoglobin, serum albumin and eGFR. Whilst both, CFS score and average HGS at time of inpatient admission are reliable indicators of frailty and longer LOS, our findings indicate HGS may be a more reliable measure in males. As a cohort, the average HGS on Discharge was marginally lower when compared to time of admission. This may be secondary to acute illness and deconditioning.

CONCLUSION:
Our findings demonstrate the significance of frailty in acute medical inpatients and the value of average HGS assessed on admission as a more accurate predictor of LOS in males. The CFS remains practical as a functional and composite measure of frailty. Avenues to better address frailty in inpatients and following hospital discharge are urgently required.

Variable	N	Mean	Std. Deviation
Age (years)	143	79.1	11.8
BMI (kg/m²) CCI score	57 140	26.8 2.2	8.5 2.3
eGFR) (mL/min/1.73m2)	133	64.0	21.9
Albumin (g/l)	124	34.6	5.1
Hb (g/l)	133	122.6	17.0
Average HGS - Admission (kg)	143	14.7	9.5
CFS score	143	4.5	1.7
Average HGS - Discharge (kg)	80	14.5	9.2
LOS (days)	101	7.2	6.9

Table 1: Participant demographics

CALCIUM AND VITAMIN D SUPPLEMENTATION IN PREVENTING SECONDARY HIP FRACTURE IN IN HOSPITAL MELAKA

Muhammad Azham K, Ammar AH, Suhana SB, Seo ST
Orthopaedic Department, Melaka General Hospital, Melaka

INTRODUCTION:
With the improvement of health care service and socioeconomic status, there is progressively increasing amount of elderly population in Malaysia. Fragility fracture is common among elderly and common sites of fracture include hip, spine, distal forearm, and proximal humerus [1]. This study was done to determine the relationship between spine fracture and secondary hip fracture. This study is also to determine the role of calcium and vitamin C supplementation in prevention of secondary hip fracture.

MATERIALS AND METHOD:
This is a retrospective study of 108 patients who were admitted to Melaka General Hospital from February to August 2023 with hip fractures. Data collection done upon admission regarding demographic, type of fracture, type of fixation, date of operation, and radiological screening for previous fragility fracture including spine, distal forearm, proximal humerus, and the usage of calcium and vitamin D supplements prior to trauma.

RESULT:
A total number of 108 patients identified. Total of 34 out of 108 patients (31%) had history of previous fragility fractures of spine, forearm, and humerus.

The most common previous fragility fracture is lumbar vertebra fracture (62%). The number of patients on calcium carbonate with vitamin D supplement prior to fall is 23 out of 108 (21.3%). The most common bone protective medication used is calcium carbonate with vitamin D supplement (23 out of 23).

DISCUSSION:
This study shows that 31% of patients had sustained secondary hip fracture. 10 out of 108 (9.3%) of patients sustained secondary hip fracture was on calcium and vitamin D supplements a prior to trauma. This shows that one-third of patient was detected to have fragility fracture but less than 10% have been properly investigated for osteoporosis. One of the reasons is lack of awareness of healthcare personnel in detecting and treating osteoporosis at outpatient department. A proper investigation for osteoporosis should be carried out on any elderly patient presented with complaint of back pain at the level of primary health center. Early detection and prescription of calcium and vitamin D supplementation in patient with previous fragility fracture could prevention risk of secondary hip fracture.

CONCLUSION:
The detection of osteoporosis in elderly patient is and usage of calcium and vitamin D supplement in prevention of secondary hip fracture is still low among population in Melaka and should be improved in the future.

REFERENCES:
Falaschi & Marsh et al., Orthogeriatrics The Management of Older Patients with Fragility Fractures 2nd Edition, page 352

Previous Fragility Fracture		Total number of patients	Percentage
Spine	Cervical	0	0%
	Thoracic	11	32%
	Lumbar	21	62%
	Sacral	0	0%
Forearm	Radius	1	3%
	Ulna	0	0%
Arm	Proximal humerus	1	3%
Total		34	

Table 1: Previous fragility fracture prior to hip fracture in elderly in Hospital Melaka

CALCIUM & VITAMIN D SUPPLEMENTATION	NO. OF PATIENT		PERCENTAGE	
	2022	2023	2022	2023
YES	9	23	8.1%	21.3%
NO	101	89	91.9%	82.4%
TOTAL	110	108		

Table 2: The number of patients with calcium and vitamin D supplement prior to fall

INCREASING RATES OF SURGICAL MANAGEMENT FOR OSTEOPOROTIC HIP FRACTURES IN A MALAYSIAN TERTIARY HOSPITAL

[1]Jeyakumar S, [1]Leong J.F, [1]Shohor N.A, [1] Rani R.A, [1]Mokhtar S.A
1. *Fracture Liaison Service/ Orthopedic and Traumatology Department / Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

INTRODUCTION:
Fragility fractures of the hip are widely recognized in Malaysia. These fractures typically result from a low energy trauma such as a fall. As the population ages, more patients with Osteoporosis require Orthopedic procedures.

MATERIALS & METHODS:
This is a prospective study from January 2022 to December 2023, elderly patients aged 55 years and above, with fragility hip fractures that were presented to our hospital were identified by the Fracture Liaison Service Coordinators. Patients with severe trauma, malignancy or steroid-induced fractures were excluded. Demographics data, medication prescription and surgical data were recorded.

RESULTS:
A total of 308 patients were recorded with a median age of 76 years. In 2022, 60% of hip fragility fracture patients have undergone surgery while 40% patients have not undergone any surgical procedures. In 2023, 74% of hip fragility fracture patients have undergone surgical procedure while 26% were treated conservatively.

DISCUSSIONS:
The prevalence of Osteoporotic hip fracture patients has undergone has increased from the previous years. One of the reasons on some patients chose not to do surgery is either financial issues or due to existing medical conditions. Patients with Osteoporosis require not only more thorough pre- and postoperative treatment plans, but improvements in surgical fixtures and techniques.

REFERENCES:
Russell LA. Osteoporosis and orthopedic surgery: effect of bone health on total joint arthroplasty outcome. Curr Rheumatol Rep. 2013 Nov;15(11):371. doi: 10.1007/s11926-013-0371-x. PMID: 24085661.

BARRIERS TO COMPLIANCE WITH FRACTURE LIAISON SERVICE IN PAKISTAN: CAN FFN ADDRESS THE PATIENTS' PERSPECTIVES?

Muhammad, Zehra Abdul[1], Ahmad, Tashfeen[1,2]; Nawazish, Zehra[3]; Jafri, Lena[3]; Majid, Hafsa[3]; Ahmed, Sibtain[3]; Amin, Alvina[4]; Aftab, Nousheen[4]; Riaz, Hafiz Mehmood[5]; Tariq, Swaleha[6]; Siddiqui, Salma[7]; Younus, Talha[8]; Umer, Masood[1]; Noordin, Shahryar[1]; Khan, Aysha Habib[3]

1. *Department of Surgery, Aga Khan University, Karachi, Pakistan*
2. *Department of Biological & Biomedical Sciences, Aga Khan University, Karachi, Pakistan*
3. *Department of Pathology and Laboratory Medicine, Aga Khan University, Karachi, Pakistan*
4. *Division of Nursing Services, Aga Khan University, Karachi, Pakistan*
5. *Department of Medicine, Aga Khan University, Karachi, Pakistan*
6. *Department of Family Medicine, Aga Khan University, Karachi, Pakistan*
7. *Department of Nutrition and Food Services, Aga Khan University, Karachi, Pakistan*
8. *Department of Physiotherapy, Aga Khan University, Karachi, Pakistan*

INTRODUCTION:
Fracture liaison services are developing in Pakistan. There is variation in knowledge and practices at public and private institutions and awareness in the public about optimal care of patients with fragility fracture. A study was conducted at Aga Khan University Hospital, a private tertiary-care center in Karachi, Pakistan to determine the feasibility of different models of care for a fracture liaison service. The aim of this sub-analysis was to identify barriers to participation in the recommended care models as perceived by patients and their families, with a view to determining how the current FFN recommendations can better address them.

MATERIALS & METHODS:
After ethical approval this prospective cohort study was initiated, by a multidisciplinary team comprising chemical pathologists, rheumatologist, family physician, orthopaedic surgeons, and nurses. Patients > 50-years of age with low-energy hip fractures were recruited. All patients were provided educational material regarding fall prevention strategies, appropriate diet, and exercise. Groups were made whereby patients were A) offered biochemical and radiological investigations and referred to rheumatology clinics for follow-up; B) requested to seek osteoporosis treatment by their general physician; C) given appointment for general physician at the hospital and D) provided health education materials only.

RESULTS:
Out of 174 eligible patients, 91 (52%) did not consent while 18 (10%) expired or were lost to follow-up, thus 65 (37%) consented patients formed the final study group. Of these, 36 (55%) patients did not comply with the recommendations as per the group allocation. Reasons were explored by telephonic call or in-person interview during follow-up visits.

DISCUSSION:
There was poor overall participation, with majority not consenting, or not following recommendations for investigations and treatment. Many of the underlying reasons appear to be addressable by counselling.

CONCLUSION:
This analysis suggests lack of knowledge, motivation and hopelessness about fragility fracture patients. Educational efforts targeting local context are needed in Pakistan's FFN efforts.

Patient's Health Condition (n=12)
- Patient is unable to participate because of frailty / Alzheimer's / psychiatric issues
- Patient is bed/chair bound, taking food through NG tube

Family's consensus on intervention (n=10)
- I have discussed with family we don't want to intervene
- We think more interventions won't favour her health
- She is already taking so many medications
- We don't have any family physician

Socioeconomic situation/Logistic issues (n=8)
- Patient lives on second floor not easy to get down
- Waiting time in clinics is long, not possible to bring
- The distance is long from our house to hospital
- We will go for investigations but can't promise
- Patient lives outside city, it is difficult to visit again
- We don't like tele-clinics, we miss doctor-patient bond

Awareness about outcomes of osteoporosis (n=6)
- No chance of secondary fracture; we have 24hr nurse
- Patient is bed-bound so 0% chances of fall
- No point working on patient's health now

Table 1: Barriers reported by patients / families to participation in secondary fracture prevention

OSTEOPOROSIS LIAISON SERVICE (OLS) IMPROVED CLINICAL OUTCOMES: A 3-YEAR REPORT

[1]Yang, Rong-Sen; [2]Chan, Ding-Cheng, Huang We-Jia
1. *Department of Orthopaedics, National Taiwan University Hospital, Taipei, Taiwan,*
2. *Department of Geriatrics and Gerontology, National Taiwan University Hospital, Taipei, Taiwan*

INTRODUCTION:

There exists a significant care gap for those suffering from fragility fracture and osteoporosis. In this study, we present the three-year outcomes of an osteoporosis liaison service (OLS) program comprising a fracture liaison service (FLS) program and a medication management service (MMS) program.

MATERIALS & METHODS:

The OLS program enrolled patients with new hip fractures or untreated vertebral fractures for the FLS program (n=600), and those with osteoporosis medication treatment but not necessarily fragility fractures for the MMS program (n = 499) from National Taiwan University Hospital and its Bei-Hu branch. Baseline assessments were conducted by care coordinators using items adapted from the 13 Best Practices Framework (BPF) standards of the International Osteoporosis Foundation. Follow-up assessments were performed via telephone at 4 months, 8 months, 1 year, 18 months, 2 years, and 3 years.

RESULTS:

The mean age of the cohort was 76.2 ± 10.2 years, with 78.8% being female. Over the first three years, the mortality rates were 6.28%, 5.34%, and 4.31%, respectively. Incident fracture rates were 4.09%, 3.11%, and 1.85%, while fall rates were 23.2%, 19.32%, and 12.1%, respectively. Cox proportional hazard models identified chronic kidney disease (CKD) and cancer, body mass index (BMI) under 18.5 kg/m^2, lower albumin levels, and higher age as significant risk factors for mortality. Lower T-scores were significant risk factors for incident fracture rates. The detailed content is provided in the following table.

DISCUSSIONS:

In the present study, we implemented a comprehensive and coordinated program aimed at identifying, assessing, and treating patients with fragility fractures. Our participation of the OLS program decreased mortality and incident fracture rate year by year. Other FLS programs implemented in Taiwan have reported similar high BMD testing rates and medication initiation rates. The OLS programs definitely improved outcomes.

CONCLUSION:

Our OLS program provided a better quality of fracture care, and we identified CKD, cancer, BMI, albumin, creatinine and age as the risk factors for mortality. T-score, fall event in the past year were the risk factors for incident fracture rate among these patients.

REFERENCES:

Chang CB, Yang RS, Chan DC et al.,
Osteoporosis International (2021) 32:2163–2172

	1st year		2nd year		3rd year	
	OR	P value	OR	P value	OR	P value
T-score	0.28	**0.04**	0.58	**0.04**	0.71	0.07
Fall	7.27	**<0.001**	6.24	**<0.001**	5.00	**<0.001**

Table 1: Risk factors of incident fracture rate

		1st year		2nd year		3rd year	
		OR	P value	OR	P value	OR	P value
CKD		2.77	**0.04**	2.82	**0.04**	1.80	0.27
Cancer		3.59	**0.01**	1.51	0.14	1.79	0.18
BMI (reference:<18.5kg/m^2)	18.5–24	0.17	**<0.001**	0.23	**0.01**	0.37	0.06
	>24	0.34	**0.02**	0.45	**0.03**	0.53	0.07
Albumin		0.27	**<0.001**	0.36	**0.01**	0.20	**<0.001**
Creatinine		1.07	0.16	1.12	0.14	1.51	**<0.001**
Age		1.03	0.20	1.03	0.25	1.09	**0.003**

Table 2: Risk factors of mortality

	1st year (N=1099)	2nd year (N=1030)	3rd year (N=975)
Dead	69 (6.28%)	55 (5.34%)	42 (4.31%)
Fall	255 (23.20%)	199 (19.32%)	118 (12.1%)
Incident fracture	45 (4.09%)	32 (3.11%)	18 (1.85%)

Table 3: Three year outcomes of the OLS program

2nd Fragility Fracture Network
Asia Pacific Regional Congress 2024

FFNAP

Thank you for your support

Platinum Sponsor

AMGEN®

Silver Sponsors

DKSH

TERAJU PHARMA

Premium Single Booth

accord
Make it better

Hyphens
Asean's Specialty Pharma Company

medispec
caring for health & wellness

Standard Booth

Galaxy Osteo Sdn Bhd

KL Wellness City
Wellness Redefined

TAISHO

ZP THERAPEUTICS
making healthcare more accessible

Other Sponsors

ANOC

BEACON HOSPITAL
A Gond Hospital

IAQ

SANDOZ

stryker

Congress Supporters

OSTEOPOROSIS
Malaysian Osteoporosis Society

MSGM

2nd Fragility Fracture Network
Asia Pacific Regional Congress 2024

FFNAP

A GLOBAL NETWORK FOR NATIONAL CHANGE

FFN Fragility Fracture Network

Organised by:

FFNM Fragility Fracture Network of Malaysia
Rangkaian Fraktur Kerapuhan Malaysia

FFN Fragility Fracture Network

Asia-Pacific Geriatrics Network

Supported by:

Malaysia Convention & Exhibition Bureau

Meet in Malaysia
BE Greater, Together.

Malaysia Truly Asia

Platinum Sponsor

AMGEN®

Silver Sponsors

DKSH

TERAJU PHARMA

Premium Single Booth

accord
Make it better

Hyphens
Asean's Specialty Pharma Company

medispec
caring for health & wellness

Medical Conference Partners
Officially Appointed Conference Secretariat
Email: connect@medicalconferencepartners.com
Phone: +603 2276 0555 • **Fax:** +603 6207 6795

fragilityfracturecongress.com