

Correlation Of FRAX Risk Score And Hip Fragility Fractures In Elderly Patients

¹Syed Ahmad Kabeer SJ, ¹Mohd Farid M, ¹Nur Atiqah MJ, ¹Zulaikha Z, ¹Mohammad Rostam S, ¹Ikhwan S, ¹Naim N, ¹Kuhanrajan R, ¹Syahril RA, ¹Kamarul Haqq AG, ¹Kamil MK

¹Orthopaedic and Traumatology Department, Hospital Tengku Ampuan Rahimah, Jalan Langat 41200 Klang

INTRODUCTION:

Hip fragility fractures are common in elderly patients with osteoporosis^{1,2}. The FRAX risk score was designed to identify elderly patients with high fracture risk, thus allowing early preventive treatment³. However, its correlation with the type of hip fracture has not been established therefore this study was conducted to identify the correlation of FRAX score without bone mineral density score (BMD) and intra-capsular hip fracture.

METHODS:

All patients aged ≥ 50 years with closed hip fracture due to fall from standing height admitted between January and December 2017 were selected. Patients with pathological or peri-prosthetic fracture, under treatment for osteoporosis or had incomplete data were excluded. Patients were divided into two groups based on intra-capsular or extra-capsular hip fracture. Patient's demography data were collected and FRAX score calculated. Data was analysed using SPSS statistical tests.

RESULTS:

119 out of 156 patients were included in this study. Majority were female with a mean age of 73.8 years. 43(36%) patients had sustained intra-capsular hip fractures whilst 76(64%) patients had extra-capsular fractures. There was no significant difference in age, gender, ethnicity, weight, height, body mass index (BMI) and FRAX score between the two groups. Binary logistic regression analysis showed a significant correlation between FRAX major osteoporosis score and intra-capsular hip fracture (odds ratio, 1.3; confidence interval 1.067-1.584). However, the odds ratio of intra-capsular fracture in patients with high fracture risk (major osteoporosis score >20) is 0.868.

DISCUSSIONS:

Intra-capsular hip fragility fracture has high morbidity and mortality^{1,2}, thus early preventive measures should be taken to avoid such fracture^{3,4}. In our study we found that there is a correlation between major osteoporosis FRAX score and intra-capsular hip fracture.

Table 1 Patients Demographic Data

Variables n= 119	Intracapsular Fracture(n= 43)	Extracapsular Fracture(n=76)	p value
	Mean +/- SD	Mean +/- SD	
Age (Yr)	73.5+/-8.8	73.9+/-9.9	0.822
Gender			
Male	13	31	0.252
Female	30	45	
Weight (Kg)	60.7+/-10.1	56.6+/-11.8	0.053
Height (cm)	159.6+/-7.8	158.2+/-8.1	0.355
BMI(Kg/m ²)	23.8+/-3.2	22.5+/-4.0	0.080
FRAX score			
Major osteoporosis	10.9+/-6.2	10.6+/-6.8	0.748
Hip Fracture	4.9+/-3.6	5.4+/-4.4	0.576
Fracture risk			Odds ratio
High	5	10	0.868
Low	38	66	

Table 2 Logistic Regression Analysis

	Coeffi ent	Standar d Error	p value	Odds ratio	CI
FRAX major osteoporosis score	0.263	0.101	0.009	1.3	1.067-1.584
Constant	-1.177	0.430	0.006		

However, 88% of intra-capsular fracture had a lower score than the major osteoporotic score of >20 recommended for early fracture prevention treatment³. This may be due to the differences in age, ethnicity, BMI, osteoporotic risk factors, and BMD between our study population and the population studied for development of FRAX score^{3,5}. Therefore, we suggest further study to validate the use of FRAX score; inclusion of BMD scores and early preventive treatment at a lower FRAX score. This study is limited by