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FUNCTIONAL OUTCOME OF GERIATRIC PATIENTS (>65 YRS OF AGE) OPERATED FOR PROXIMAL FEMORAL FRACTURE AFTER 90 DAY FOLLOW UP PERIOD.

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Abstract

Background: With increasing geriatric patient population worldwide, hip fracture exists as a major health-care issue with its high mortality, morbidity, and financial liability. Anesthetists play a very important role in the perioperative care of these patients.

Methods: The present study was a prospective observational study and was registered prospectively in the *clinical trials* registry- *India* (CTRI) with registration number of CTRI/2018/03/012853. Duration of study was from August 2017 to November 2018.

Results: A maximum of (n=43) patients had a mobility scale of 7 at 30 days. (n=46) had a mobility scale of 6 at 60 days. Bimodal peaks were seen at 90 days with (n=27) had a mobility scale of 4 and (n=28) had a mobility score of 6 at 90 days. The median mobility score was 7(7-9), 6(6-7), 4.5(4-6) at 30, 60 and 90 day postoperatively.

Keywords: Outcome, Neck, Femur.

Introduction

With increasing geriatric patient population worldwide, hip fracture exists as a major health-care issue with its high mortality, morbidity, and financial liability. Anesthetists play a very important role in the perioperative care of these patients. Proximal femoral fractures carry distinctive challenges for the anesthetists as geriatric patients might harbor significant comorbidities.[1]

Although individual organ evaluation cannot be ignored in the geriatric patient, recognition of preoperative markers depicting the unique vulnerability of the geriatric patient (e.g., frailty, disability, and comorbidity) may provide additional insight in predicting perioperative complications and poor outcomes, thus aiding preoperative decision-making. Frailty index may estimate physiologic reserves although its use is not fully evaluated in Indians with fractured hip.[2]

Material and Methods

The present study was a prospective observational study and was registered prospectively in the *clinical trials* registry- *India* (CTRI) with registration number of CTRI/2018/03/012853. Duration of study was from August 2017 to November 2018. We recruited patients till month of August in year 2018 and the three month follow up period ended in November 2018. Study was started after approval of the protocol by the Institute Ethics Committee (NK/3836/MD/499). Written informed consent of the patients was taken prior to recruitment. A minimum sample size of 80 patients (approved by the Institute Ethics Committee) was chosen based on the monthly audit reports which recorded a median number of cases of proximal femur fractures in elderly (>65years) to be 9/month.

Inclusion Criteria

Patients aged more than 65 years of age with proximal femoral fracture following trivial trauma, admitted in the Advanced Trauma Center and orthopedic ward of PGIMER for operative intervention were evaluated for inclusion.

Exclusion Criteria

1) Patients with poly-trauma.

2) Patients with pathological fracture.

3) Refusal to give consent.

Statistical Analysis

Statistical analysis was carried out using IBM SPSS (Statistical Package for Social Sciences) statistical version 2.0. The analysis included frequency table, association of

variables based on Chi-square test. Normality of data was checked by Kolmogorov–Smirnov tests of normality.

All quantitative variables assessing the 30, 60 and 90 day adverse outcome were estimated using measures of central tendency (mean and median) and measures of dispersion (standard deviation). All statistical tests were seen at two-tailed level of significance ($p \leq 0.05$). Statistical significance between the survivor and non-survivor group was tested using 2 sample independent t test (for normal variables) and Mann Whitney test (for non-normal variables).

To find factors that affect the outcome of elderly patients undergoing orthopedic interventions we used multivariate logistic regression analysis. Variable for multivariate analysis were chosen from significant variables via univariate analysis. All variables were made dichotomous by using dummy variables as 0 and 1. As a first step univariate models of 30, 60, 90 day mortality were evaluated to see the predictive capacity of all collected individual variable thought by the investigators to have a predictive effect on mortality $P \leq 0.05$ was statistically significant.

Results

The severity of pain decreased over a period of 90 days. The median pain score was 4(3-4), 2(2-3), 2(1-2) at 30, 60, and 90 day postoperatively. Maximum number of patients (n=40) (42.11%) had a pain scale of 4 at 30 days, while at 60 days majority (n=38)(40%)had a pain scale of 2. At 90 days postoperatively maximum (n=37) (38.95%) had pain scale of 1.

Table 1: *Distribution of pain scores at 30, 60 and 90 days*

Pain score.	Number of patients at 30 day.	Number of patients at 60 days.	Number of patients at 90 days.
0	3	1	1
1	3	19	37
2	8	38	29
3	21	15	7
4	40	9	5
5	16	3	3
6	3	1	0
7	1	0	0
8	0	0	0

"0=Unable to answer.1= No pain at all in the hip, 2=Occasional and slight pain. May occasionally take mild analgesia such as paracetamol.3= Some pain when starting to walk, no rest pain. Occasional analgesia taken, 4= None or minimal pain at rest, some pain with activities, frequent mild analgesia, 5= Regular pain with activities which limits walking distance. Occasional or mild rest pain.6= Frequent rest pain and pain at night. Pain on walking. Regular mild analgesia and occasional stronger analgesia taken 7=Constant pain present around the hip. Regular mild analgesia and frequent strong analgesia 8=Constant and severe pain in the hip requiring regular strong analgesia such as opiates"

At 30 days social dependence had a bimodal peak with (n=26) patients having a score of 4 and (n=27) having a sore of 7. At 60 days postoperatively (n=24) patients had a social dependence score of 5 and at 90 days postoperatively maximum had a social dependence score of 2. The median social dependence score was 5(3-7), 4(3-5), 4 at 30, 60 and 90 day postoperatively.

Table 2: *Distribution of social dependence scale at 30, 60 and 90 days*

Social dependence score.	Number of patients at 30 day	Number of patients at 60 day	Number of patients at 90 day
1	0	0	3
2	1	12	27
3	5	18	15
4	24	16	19
5	26	24	11
6	8	6	1
7	27	9	6
8	3	1	0

"1=completely independent. Requires no assistance in basic or advanced activities of daily living (ADL) including shopping,2=Minimal assistance. Requires occasional help up to twice a week from family, friends or other services with some activities such as shopping or gardening.3=Moderate assistance. Requires regular assistance more than twice a week but less than seven times a week with some ADL such as bathing, washing or heavy housework,4=Regular assistance. Requires daily help to assist with ADL,5= Dependent. Requires regular help more than once a day with many basic ADL such as preparing food and housework but remains living at home.6= severely dependent. Living in residential care. Full-time care facility but independent of at least one basic ADL such as being able to dress or go to the toilet without help, 7= Fully dependent. Living in nursing home, skilled nursing home or long-term hospital facility with full-time nursing care. Patient requires assistance in most ADL living such as washing, dressing and getting to the toilet. 8= Patient temporarily resident in hospital requiring both nursing and medical care"

A maximum of (n=43) patients had a mobility scale of 7 at 30 days. (n=46) had a mobility scale of 6 at 60 days. Bimodal peaks were seen at 90 days with (n=27) had a mobility scale of 4 and (n=28) had a mobility score of 6 at 90 days. The median mobility score was 7(7-9), 6(6-7), 4.5(4-6) at 30, 60 and 90 day postoperatively.

Table 3: *Distribution of mobility scale at 30, 60 and 90 days*

Mobility score.	Number of patients at 30 day	Number of patients at 60 day	Number of patients at 90 day
1	0	0	2
2	0	0	8
3	0	2	6
4	0	9	27
5	1	1	2
6	19	46	28
7	43	18	5
8	4	2	1
9	19	3	2
10	9	5	3

"1=Never uses any walking aid and no restriction in walking distance,2= Never uses any walking aid, but walking distance limited to less than one kilometre,3= Occasionally uses a walking aid when out walking.4= Normally uses one walking stick or needs to hold on to furniture, 5= Normally uses two sticks or crutches,6= Mobilises with a frame alone, without the need for assistance,7= Mobilises with a frame and the assistance of one other person.8= Mobilises with a frame and the assistance of two people,9= Bed to chair (with or without assistance), or wheel chair bound,10= Bedbound most or all of the day"

Discussion

Patients were followed at 30 day, 60 day and 90 day interval postoperatively and were assessed on three scales, pain, social dependence and mobility. Majority of people had a pain score of 4 at 30 days i.e. they were having minimal rest pain and taking frequent analgesics. At 60 days maximum had pain score of 2 i.e. they had slight pain and occasionally may take mild analgesic. At 90 day majority (38%) had no pain at all in the hip.

Social dependence was assessed at 30 days and there was lot of variation in the score. 28% of people required assistance to go to toilet and bathing while 27% of patients were dependent in activities of daily living but were able to bathe and go to toilet themselves, while. 25% of people required assistance in their routine activities. At 60 days most of the patients were able to go to toilet themselves many only required only moderate assistance. At 90 days maximum number of patients 32.92% required minimal assistance in advanced activities of daily living. Basic activities were eating, dressing, toileting, washing, while advanced activities were housework, cooking, shopping.

Mobility score assessment at 30 days showed maximum number of patients (45%) had a score of 7 i.e. they mobilized with the help of a frame and an assistant. At 60 days 53% of patients were able to mobilize with frame without the need of assistance. At 90 days 34% of patients mobilized with a frame without any assistance while 32% used a walking stick to mobilize.

Conclusion

Improving the patient outcome represents a challenge and improved rehabilitation programs and dedicated geriatric centers are needed for quality care after hip surgeries including a dedicated thromboprophylaxis protocol from admission to discharge. However large prospective studies evaluating the best indicators are needed to improve the management of patients with hip fractures.

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