Original Article

Psychiatric Morbidity Associated with Hip Fractures – A Hospital Based Study

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Abstract

Background: Most prevalent type of fractures encountered in elderly population are fall related hip fractures, which are even more common in female elderly population. Studies have shown such type of fractures are associated with psychiatric morbidity. This study is being taken into account for evaluation of different type of psychiatric morbidities associated with hip fractures in elderly population.

Methods: This retrospective study is conducted Teerthankar Mahaveer medical college hospital, Moradabad, on 45 patients, who underwent hip surgery in last six months.

Results: Maximum number of patients with hip fracture were in the age range of (81-90 yrs), more so over in that category females with hip fractures were 80.95%, and least number of patients with hip fractures were in the age range of (61-70 yrs.).

Conclusion: Delirium, dementia and depression are most severe type of neuro-psychiatric co-morbidities are associated with elderly hip fractures. These co-morbidities may be minimized by pre-operative and post-operative care.

Keywords: Hip fractures, Delirium, Dementia and Depression

INTRODUCTION

Hip fractures are the most severe type of fall-related injuries among elderly patients and are associated with high morbidity, mortality and impairment in quality of life.[1,2] There are two major anatomic types: intra-capsular and extra-capsular type of hip fractures. Research has shown that advancing age is more strongly associated with risk of inter-trochanteric fractures than sub-capital fractures.[3] In women the proportion of the hip fractures rises significantly with age whereas the proportion of inter- trochanteric fractures among men decreases with age.. The rise in hip fractures incidence in elderly [4] will lead to exponential rise in patients with co-morbid conditions like dementia, depression and delirium. Hip fractures were defined according to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada (ICD-10-CA) as either subcapital fractures (S72.0-S72.091) or intertrochanteric fractures (S72.1-S72.191). High rates of psychiatric morbidity have been reported amongst subjects with hip fracture as compared to community rates.[5-8] Among the co-morbidities, neuropsychiatric disorders represent a major challenge in terms of mortality and functional outcome of hip fracture patients.

Delirium is the most studied organic psychiatric disorder in patients who sustained a hip fracture, and it has been associated with increased morbidity and mortality rates, a longer length of hospital stay, and an increased risk of nursing home placement.[9]

Its incidence ranges from 16% to 62% after surgery for hip fracture.[10] It usually peaks between 2 and 5 days after surgery.[11]

Prevalence of depression in older people after hip fracture ranged from 9% to 47% and largely exceed the 2% and 10% respectively reported for major and minor depressive disorder in the aged-matched not affected people.[12]

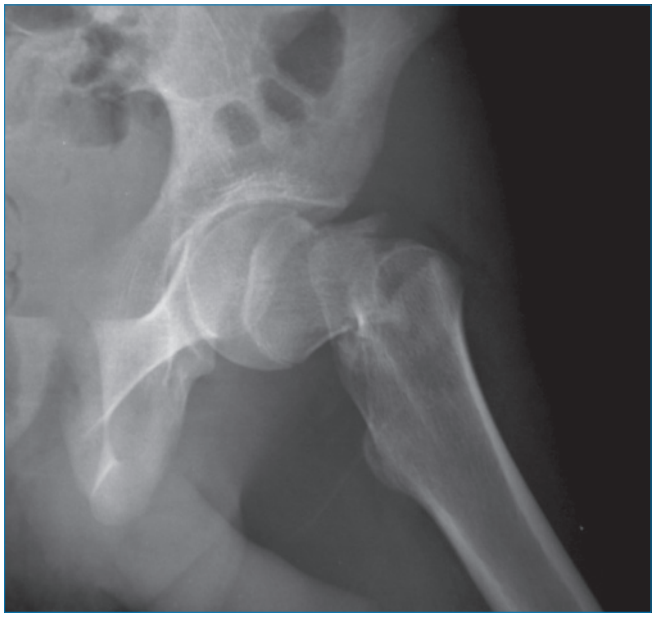

Figure 1: Intra-capsular fracture hip (62 yrs male)

The amount of research on hip fracture outcomes is quite extensive. Significant predictors of the degree of recovery from hip fracture include pre fracture variables such as age, functional ability, mental status, and psychiatric conditions such as dementia and depression.[13]

Although females have a higher incidence of hip fracture than males, men who fracture a hip often show higher mortality rates than women.[14,15]

The research findings relating cognitive status to hip fracture survival and return of functional status clearly indicate that the presence of cognitive deficits, either dementia or delirium, was associated with death and delayed return of mobility.

AIM & OBJECTIVE

The high rates of mortality and morbidity after hip fracture in elderly demands further research so that we can combat those predisposing factors and decline in the incidence in associated co-morbid conditions can be made.

MATERIAL & METHODS

This retrospective study was conducted in department of Psychiatry and Orthopaedics, Teerthankar Mahaveer medical college hospital, Moradabad, on 45 patients (Male=8, Female=37) above 60 years, who had undergone surgery for hip fracture, for last six months were included in the study. Snowball sampling technique was used. We recorded age, sex, socio-economic status, rural/urban background, type of fracture, pre-operative physical and mental status. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV criteria) (1994) [16] type of anesthesia used, operation performed, drugs and advice prescribed at the time of discharge. Before starting the study necessary research protocol including ethical and research committee approval was taken. Data recording was done from medical record section with prior permission of Medical Superintendent.

RESULTS

As can be using Table 1, that maximum number of patients with hip fracture was in the age range of (81-90 yrs), more so over in that category females with hip fractures were 80.95%, and least number of patients with hip fractures were in the age range of (61-70 yrs).

Maximum percentage of female patients was in age range of more than 91 yrs of age (88.88%).

Out of 45 patients in whom the study was conducted 82% were females.

Table 1

Age (Years)	Total=45		Female=37		Male=8	
	Number	Percent	Number	Percent	Number	Percent
61-70	3	8	2	66.66	1	33.34
71-80	12	27	10	83.33	2	16.67
81-90	21	46	17	80.95	4	19.05
>91	9	19	8	88.88	1	11.12

Table 2

Variables	Trochanteric fracture N=14	Cervical fracture N=31
Mean age (yrs)	81.9	78.8
Standard deviation (SD)	±6.8	±5.2
Range (yrs)	75-91	69-89

As can be observed using Table -2 that out of 45 patients having hip fractures 14 (31.11%) patients were having Trochanteric, and 31 (68.89%) patients suffered Cervical fractures. Trochanteric fractures were mostly seen in age range of (75-91 ± 6.8 yrs), while Cervical fractures were mostly present in age range of (69-89 ± 5.2 yrs). Mean age for Trochanteric fractures was (81.9 yrs) and for Cervical fractures, it was (78.8 yrs).

Table 3: Type of psychiatric disorder

Depression		Dementia		Delirium	
Number	Percent	Number	Percent	Number	Percent
12	26.66	19	42.22	10	22.22

Out of 45 patients who underwent hip surgery, 12 (26.66%) developed depression,19 (42.22%) dementia and 10 (22.22%) developed delirium. In all 91.11% developed some sort of psychiatric disorders and remaining 4(8.88%) went unnoticed or didn't show any sort of psychiatric illness. Dementia was the most common psychiatric illness developed by the patients.

There was non-significant (p>.005) difference in percentage of development of psychiatric illness between male and female elderly patients.

DISCUSSION

Retrospective study for (six months) as done by us has also been carried out earlier by Meyn MA Jr et al in 1977, MacCollum MS et al in 1989 & Yan I, Zhou B et al in 1999.[17-19]

Our study showed rise in incidence of trochanteric fractures in elderly females with increasing age, but this is not so with elderly males. This result is similar to as observed by Karagas et al. (1996)[20] in showing a rise in the proportion of intertrochanteric fractures in women with increasing age, but not in men.

In our study the relative proportion of trochanteric fractures increased from 32% to 62% from youngest group of elderly females to oldest group of elderly females while in elderly males it came down from 56% to 44%. The predisposing factor for this might be loss of trabecular and cortical bone with age, which may differ between male and females.[21] Rising proportion of trochanteric fractures in women may reflect greater trabecular bone loss with age in women.

Falls cause a hip fracture in 0.6% of people under 64 years, in 10.8% of people over 64 years, in 12.9% over 74, and in 14.2% over 79.[22] In our study we found 8%, 27%, 46% and 19% in age groups 61-70, 71-80, 81-90 & >91 yrs respectively.

Hip fractures, comprise femoral neck, greater and lesser trochanter, and subtrochanteric parts and most studies consider these together as a single unit. However, this may obscure etiological and occurrence patterns that result from differences in anatomical structure and bone composition.[23]

Elderly hip fractures are not important only to Orthopaedicians but also for Psychiatrists. Accordingly to Hempsall, V. J., Robertson et al[24] showed 12±20% mortality in the first year after hip fracture and Laxton, C., Freeman, C et al[25] showed that remaining suffered impaired quality of life.

Prevalence of psychiatric illness in elderly hip fracture population is 9±47% for depression and 31±88% for cognitive impairment are described(Williams et al 1985a[26] Williams et al 1985b[27] Billington et al 1986[28], Berggren et al 1987[29] & Gustafson,1988[30]). So much of variation in prevalence is probably due to differing sampling methodology, screening tools used. Such type of wide variation in psychiatric illness was not reported in our study. This is because of the fact that we employed uniform criteria (snowball sampling method) to access the condition.

The presence of depression in older persons who fracture a hip also is a determining factor in recovery.[31]

A year later analysis of the same study, showed that elderly patients with persistent depression were at a much higher risk for not returning to pre fracture levels.[32]

Our study on 45 patients who developed,12 (26.66%) depression, 19 (42.22%) dementia and 10 (22.22%) delirium well in accordance with similar studies conducted by Van Marwijk HW, Wallace P et al & Lenze EJ, Munin MC et al.[33,34]

CONCLUSION

Functional outcome in elderly patients having hip fractures are significantly related to the presence of neuropsychiatric co-morbidities. The most frequent ones in elderly are delirium, dementia and depression. Early detection of these co-morbidities may improve survival, and level of functional recovery. We the authors of this study strongly support the pre-treatment assessment of neuropsychiatric disorders using appropriate screening tools and further assessment of patient condition at 1,3 and 6 months post-operatively.

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How to cite this article: Prerana Gupta, Julfiqar, S K Jain. "Psychiatric Morbidity Associated with Hip Fractures - A Hospital Based Study". International Journal of Scientific Study. 2014;1(4):54-57.

Source of Support: Nil, **Conflict of Interest:** None declared.