Original Article

Orthopaedic Surgery

Incidence and Subsequent Mortality after Hip Fracture in Sindh and KPK Population

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ABSTRACT

Objective: To evaluate incidence and subsequent mortality after hip fracture in Sindh and Khyber Pakhtunkhwa population.

Study Design: Prospective and Observational Study.

Place and Duration of Study: This study was conducted in Orthopedic wards of the Zia-ud-Din teaching hospital, Dow University hospital, Jinnah Postgraduate Medical Centre (JPMC) hospital, Karachi, Peoples Medical University Hospital, Nawabshah, Ayub Medical College Teaching hospital Abbottabad and Lady Reading Hospital, Peshawar for the period of 15 years from January 1996 to December 2011.

Patients and Methods: Five thousand patients with hip fractures admitted in Orthopaedic Wards at Zia-ud-Din teaching hospital, Dow University hospital, JPMC, Hospital Karachi, Peoples Medical University Hospital, Nawabshah, Ayub Medical College Teaching hospital, Abbottabad and Lady Reading Hospital, Peshawar were studied.

Results: When results were summed up and test parameters were compared, it was seen that the incidence of Hip fractures were increased from 1996 to 2011 and steadily declined from 2003 to 2011, but comorbidity rates were increasing ($P<0.05$).

Conclusion: Finally we conclude that in the Sindh and KPK provinces of Pakistan, Hip fracture rates and subsequent mortality among elderly are declining and comorbidity among these patients is increasing. We suggest that large scale studies among all big cities of Pakistan may be carried out to evaluate above facts. To reduce mortality, attention must focus on improvement in health care.

Keywords: Hip fracture rates, Mortality, Elderly patients

INTRODUCTION

Hip fracture is a devastating event that causes major morbidity and mortality, particularly in elderly population. Although the incidence of hip fracture varies by geography and ethnicity, its increasing incidence is a worldwide problem, which adds considerably to the public health burden and economic costs. [1]. Several risk factors are associated with the occurrence of hip fracture, including osteoporosis, physical conditions, comorbidities, concurrent pharmacologist's effects, and environmental factors. High mortality among patients after hip fractures has been demonstrated in previous studies [2]. Acute and short term mortality is predominantly a result of infections, cardiovascular comorbidities, and postoperative complications [3]. Treating hip fractures is also very expensive; concern still exists that because of the aging of the population, the hip fracture incidence will increase worldwide unless additional steps are taken. [4 - 6]. Present study was planned to examine above facts by using a series of patients.

PATIENTS AND METHODS

Five thousand patients with hip fracture admitted in Orthopedic wards of the Zia-ud-Din teaching hospital, Dow University hospital, Jinnah Postgraduate Medical Centre (JPMC) hospital, Karachi, Peoples Medical University Hospital, Nawabshah, Ayub Medical College Teaching hospital Abbottabad and Lady Reading Hospital, Peshawar, were studied for the period of 15 years (from January 1996 to December 2011). The comorbidities, which were obtained from data, include history of acute or old myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, dementia, chronic pulmonary disease, paralysis, ulcer disease, liver disease, chronic renal failure, liver cirrhosis, rheumatologic disease, and diabetes. Comparison of various parameters for 2 periods, 1996 – 2003 and 2004 – 2011 were made with X2 test of homogeneity for men and women separately. Trends were calculated for 3 age groups: 65-74 years, 75-84 years and 85 years or older, and separately for men and women as evaluated earlier. All statistical testing was 2 sided, at a significance level of <0.05.

RESULTS

We documented 5000 hip fractures in total between the period of 1996 and 2011. Hip fracture incidence in women was greater than twice the incidence seen in men for the entire period. (Although high mortality

associated with hip fracture is well recognized. The most common comorbidities of individuals with hip fracture were congestive heart failure, chronic pulmonary disease, and diabetes (Table). In patients with hip fracture, all the comorbidities have increased with the exception of hemiplegia in men and women and cerebrovascular disease in men.

Table No.1: Age-Adjusted Comorbid Conditions for Patients with a Hip Fracture [a]

Comorbid Condition	Patients with a Hip Fracture, %			
	Men		Women	
	1996 – 2003	2004 – 2011	1996 – 2003	2004 – 2011
Myocardial infarction	4.35	12.90	3.09	9.13
Cancer	7.0	10.2	4.0	25.99
Stroke	24.1	35.25	10.05	10.6
Chronic renal failure	3.35	8.09	1.25	3.90
Heart failure	14.0	30.0	12.0	26.03
Diabetes Mellitus	5.0	0.3	7.09	9.0
Liver disease	0.1	0.2[b]	0.2	0.3
Paralysis	2.1	2.0	1.99	1.0
Peripheral vascular disease	3.0	9.05	2.0	5.90
Rheumatologic disease	1.0	2.03	2.0	3.0
Ulcer disease	3.0	4.0	1.5	2.99
Liver Cirrhosis	0.3	0.6	0.3	0.6

a All differences across time are statistically significant at the P<.001 level except as noted.
b Denotes statistical significance at P<.01

DISCUSSION

Our analysis of the 15 year trend in hip fracture incidence and mortality reveals 2 distinct eras. In the first, from 1996 through 2003, hip fracture incidence was increasing, but mortality after a hip fracture was falling. In the second era, after 2003, the incidence of hip fracture fell, but mortality after a hip fracture was essentially unchanged. After 2003, there has been a larger decrease in hip fractures in women than in men. Our study is in agreement with study done by Carmen et al [7]. We also found same statistical figures. Why these trends have occurred is not entirely clear. Lifestyle changes may contribute to the decrease in hip fracture incidence, with decrease in hip fracture incidence, with attention focused on calcium and vitamin D supplementation, avoidance of smoking, regular weight bearing exercise, an awareness of falls [8]. A recent study in Canada documented similar decreases in the hip fracture rate [9]. Despite the decreases in hip fracture incidence of hip fracture is still higher than that seen in other countries [7,10-14]. The reduction in mortality from hip fracture is equally important to explain. Most of the decreases in mortality occurred before 1998, with a somewhat larger decrease in men than women. After 1998, very little change occurred in mortality for either sex. Surgical and medical management of hip fracture patients has improved over the last 20 years. There has been a focus on care maps to improve timely surgical intervention. Improved surgical devices and movement arthroplasty, combined with a push for earlier weight bearing exercise [15], may have reduced mortality by improving mobilization. Better use of prophylactic anitbodies, aggressive medical management [16], and increased rates of discharge to non-acute health care settings (rather than home) also may have contributed to the mortality improvements. The increase in frequency of comorbidities over time may reflect, to some extent, changes in coding practices and disease definitions rather than represent true change in disease prevalence.

CONCLUSION

Finally we conclude that in the Sindh and KPK provinces of Pakistan, Hip fracture rates and subsequent mortality among elderly are declining and comorbidity among these patients is increasing. We suggest that large scale studies among all big cities of Pakistan may be carried out to evaluate above facts. To reduce mortality, attention must focus on improvement in health care.

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