Original Article

Postoperative Complications and Mortality in Elderly Patients with Acute Hip Fracture

Orthopaedic Surgery

1. Saeed Vohra 2. Asim Hussain 3. Rajab Ali

1. Prof. of Anatomy, JMC, Peshawar 2. Asstt. Prof. of Orthopaedic Surgery, Zia-ud-Din University, Karachi
3. Assoc. Prof. of Community Medicine, JMC, Peshawar

ABSTRACT

Objective: Present study was planned to evaluate postoperative complications and mortality in elderly patients undergoing surgery of hip fracture.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at departments of orthopedic surgery of Zia-ud-Din Teaching University Hospital, Dow university Hospital, Karachi and Leady Reading Hospital Peshawar from the period January 2009 to December 2012.

Patients and Methods: Five hundred patients admitted with an acute hip fracture (between the period of 2009 – 12) at Zia-ud-Din Teaching hospital, Karachi and LRH hospital Peshawar were examined. Postoperative complications and mortality at 30 days.

Results: When results were summed up and test parameters were compared, it was found that the most common complications were cardiac failure (10%) and chest infection (7%). Post operative mortality at 30 days in cardiac failure patients was 70% and in patients with chest infections was 35 %.

Conclusion: Finally we conclude that cardiac failure and chest infection (which emerged as most common complications) are associated with increased mortality in elderly patients with hip fractures the mechanisms involved need further studies that may help to reduce the severity of complications to improve standard of care for elderly patients with hip fracture as suggested earlier.

Key Words: Hip fracture, Post operative complications, mortality.

INTRODUCTION

Hip fractures related to osteoporosis constitute a major clinical and financial burden to the NHS. In 2002-3, there were 78 554 admissions to NHS hospitals in England for fractured neck of femur, 96% of these were in people aged ≥ 65.Bed occupancy for hip fracture was in excess of 1.5 million days, which represents 20% of total orthopaedic bed stays[1],Osteoprosis affects 1 in 4 women and 1 in 8 men over 50 years old and is the precursor to fragility fractures. In Europe, an estimated 3.79 million fractures occurred in 2000, of which a quarter were hip fracture.[2]Carbone and colleagues have examined the relationship between heart failure, hip fracture and mortality from the Cardiovascular Health Study (CHS). A total of 5613 individuals free form heart failure at the initiation of the CHS were followed for over a decade. Heart failure developed in 27%; 5% of these patients developed a hip fracture (a total of 70 hip fractures) after developing heart failure,in women over 45 accounts for a higher proportion of occupancy of hospital beds than many other common disorders. Excess mortality is 20% in the first year and is higher in older men[3].The high mortality, particularly in the first three months, is probably due to the combination of trauma, major surgery in elderly people with concurrent medical problems, and a low physiological reserve. Identifying which patients are at greatest risk of developing complications and which types of complications are life threatening has been examined in a large prospective study[4].We investigated important medical conditions that influence postoperative complications and mortality. Other important factors, such as delay to surgery, type of treatment, and length of stay, were not considered.We evaluated postoperative medical complications, the association between these complications and mortality at 30 days.

PATIENTS AND METHODS

We analyzed five hundred patients admitted with an acute hip fracture who underwent hip surgery from the period January 2009 to December 2012 at departments of orthopedic surgery of Zia-ud-Din Teaching University Hospital, Dow university Hospital, Karachi andLeady Reading Hospital Peshawar. Their age was between 60-90 years. Follow upended on 31st December 2012. Patient's data was collected personally by using detailed proforma. Patients with incomplete records and with simultaneous bilateral fractures, pathological fractures and patients with age below 60 years were excluded from the study.We diagnosed complications clinically or after clinical laboratory evaluation and recoded them prospectively until time of hospital discharge. Statistical analysis was carried by univariate Cox regression analysis. The significance level for all statistical tests was set at 5 % ($P < 0.05$).

RESULTS

When results were summed up and test parameters were compared it was seen that the mean age of patients was 73 years (60 – 90) among which 85% patients were women. About 22 % of patients had developed post operative complications. The incidence of postoperative complications was as under (Table): cardiac failure and chest infection were most common complications. Cardiac failure; 10%that was diagnosed clinically with or without radiographic changes consistent with acute left ventricular failure. The second most common complication was chest infection (6%)that was diagnosed clinically in the presence of fever, clinical findings with or without radiographic changes consistent with branchopneumonia. Other notable complications were: urinary tract infections 3.5% that was diagnosed positive results on urine culture. There were 8 stroke patients (diagnosed by computerized tomography) and three patients were victims of acute myocardial infarction, diagnosed by ECG changes with a rise in Tropanine-1 levels. Mortality rate in patients with post operative heart failure was 70% at 30days. In patients who developed postoperative chest infection, the mortality rate was 35% at 30 days.Two patients developed deep vein thrombosis (Diagnosed by Doppler ultrasonography) or pulmonary embolus (diagnosed by CT angiography). Their hazard ratio was 5 for death at 30 days.

Table No.1 Comorbidity and postoperative complications in 500 elderly people with acute hip fracture

Postoperative complication	No. (%)	30 days mortality
Cardiac failure	10	70%**
Chest infection	7	35% *
DVT/PE	2	2%
Urinary Tract Infection	3.5	3.5%
Deep infection	1	0% NS
Gastrointestinal haemorrhage	1	0%
Stroke	2	0%
Myocardial infarction	1	0%

** P<0.01 * P<0.05

DISCUSSION

Osteoporosis and heart failure are prevalent conditions, particularly among the elderly. Worldwide over 1.7 million hip fractures, the most serious fracture related to osteoporosis, occur annually with over 340,000 occurring in the USA alone[5,6]. Heart failure and chest infection are thought to be major postoperative complications in elderly patients undergoing surgery for hip fracture, present study is in agreement with above studies[7-9].The 30 day mortality is comparable with that of the Oxford NHS health region from 1984-98 and is also typical of other units within the UK,[10] Europe, and the US.[11] Our most striking result was the high mortality for patients who developed cardiac failure or a chest infection after surgery for hip fracture. In the 30 days after surgery, patients developed one of these complications yet they accounted for large number of the deaths. To reduce mortality, attention must focus on optimizing health status preoperatively, preventing postoperative complications, and, when these complications develop, providing optimal specialist medical care. In 1989 the Royal College of Physicians recommended medical assessment of patients with hip fracture to reduce their operative risk,[12]Specialist medical assessment and management of elderly patients with hip fracture before and after surgery, however, remains uncommon in the Pakistan. The number assessed was small and most of the patients who died postoperatively had no formal specialist medical assessment before or after surgery.[13-15]

CONCLUSION

A fifth of patients had a postoperative complication, the most common being chest infection and heart failure. Within 30 days of surgery 70% of patients with heart failure and 35% with postoperative chest infection died. The mechanisms involved need further studies urgently that may help to reduce severity of complications to improve standard of care for elderly patients with hip fracture as suggested in a recent study done by Roche etal[7]

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Address for Corresponding Author:
Prof. Dr. Muhammad Ishaq
Jinnah Medical College
Warsak Road, Peshawar.
Contact No: 0333-9152060