TIME INTERVAL BETWEEN ADMISSION AND OPERATION OF HIP FRACTURES IN THE ELDERLY

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ABSTRACT

Objective: The purpose of this prospective study was to measure the time interval from admission to surgery of patients with neck of femur fractures at Armed Forces Hospital Khamis Mushayt, Saudi Arabia, and Mayo University Hospital Castlebar, Ireland. And it was compared with established standards.

Methodology: The study was conducted from January 2015 till June 2017; only elderly patients above 50 years with hip fracture due to trivial trauma were included in the study. The standards selected for comparison were the “Scottish Intercollegiate Guidelines (SIGN 56) 2002” according to which “Patients should be operated on, as soon as possible (within 24 hours)” and the British Orthopaedic Association (BOA), Jan. 2008, guidelines, which states “Surgical fixation should not be delayed more than 48 hours”.

Results: Out of 113 patients with hip fracture, there were 43 (38%) male and 70 (62%) female. Significant co-morbidities were found especially in the age range of 61-80, which comprised 64% (73) of the patients. Intra-capsular fractures were 37(32.75%) and Extra-capsular were 76(67.25%). Patients operated within 24 hours (Scottish Guidelines) were 35 (31%) and those operated within 48 hours (BOA guidelines) were 76(35+41) 67%. Reasons for delay in (37) 33% patients operated after 48 hours were non-availability of HDU bed, delayed cardiac evaluation and lower respiratory tract infection.

Conclusion: Patients at our hospital with fragility hip fractures were operated within the international time interval guidelines. There is no solid evidence in the literature suggesting which time frame should be used but the Scottish (24 hours) and the BOA (48 hours) are the guidelines most institutions follow. Although we failed to achieve the Scottish standard, 98% of our patients were operated within the BOA standard.

KEYWORDS: Hip Fractures, Timing of Surgery, Elderly

INTRODUCTION

Hip fracture is a common and serious injury that occurs mainly in older people and most hip fracture patients undergo surgery. The hip fracture is considered the second leading cause of hospitalization for elderly people in US and the West. Incidence increases substantially with age, rising from 22.5 and 23.9 per 100,000 at age 50, to 630.2 and 1289.3 per 100,000 populations at age 80, for men and women, respectively. The care of hip fracture is costly, an average of £5000
for hospital and subsequent care is widely accepted, with hospital costs in Scotland probably amounting to around £30 million a year, and total costs around £60 million. Patients should be fully evaluated before surgery. In addition to causing distress to the patient, delay in surgery is associated with increased morbidity and mortality. Short delays prior to surgery may be justified for the correction of such conditions as poorly controlled cardiac failure, Diabetes Mellitus, electrolyte imbalance and significant anaemia. Infective pulmonary conditions should not be the cause of delay for surgery. Early surgery (within 24 hours) reduces the risk of deep vein thrombosis (DVT), fatal pulmonary embolism (PE) and pressure sores after hip fracture. Surgery should be performed as soon as the medical condition of the patient allows, provided that appropriate staffing and facilities are available. It has also been demonstrated that surgical treatment conducted as a night-time emergency increases the mortality.

METHODOLOGY
The purpose of this prospective, multi-centre criteria-based study, was to measure the time interval from admission to surgery of patients with neck of femur fractures, and to compare this with already established standards. The study was conducted from January 2015 till June 2017; patient’s data was collected on a previously approved Proforma. Elderly patients with hip fracture due to trivial trauma were included in the study and those with hip fractures due to road traffic accidents and patients younger than 50 years were excluded from the study. The standards selected for comparison were the “Scottish Intercollegiate Guidelines (SIGN 56) 2002” which states that,” Patients should be operated on, as soon as possible (within 24 hours), during standard daytime working hours, including weekends, if their medical condition allows”, and British Orthopaedic Association, Jan. 2008, guidelines which states that the “Surgical fixation should not be delayed more than 48 hours from admission unless there are clear reversible medical conditions”.

RESULTS
Males were 43(38%) and females 70(62%), figure-1. Majority of the patients 73(64%) were in the age range of 61 to 80 years, Figure-2. A significant number of co-morbidities were found in these patients, Figure-3. Patients sustaining extra-capsular hip fractures were 76 (67.25%) while 37 (32.75%) patients sustained intra-capsular fracture. Figue-4 Only 35 (31%) patients were operated within 24 hours (Scottish Guidelines) and 76 (35+41) 67% were operated within 48 hours (BOA guidelines). Figure-5 Reasons for delay in the (37) 33% patients operated after 48 hours are shown in figure-6.

DISCUSSION
Hip fracture represents a major prognostic risk factor for elderly people and most do not regain their previous activity level, leading to complete loss of social independence, which in turn leads to dependence on family, nursing homes, hospitals eventually on the health care system leading to high costs. The effect of delay of surgery on the fragility fractures has been a subject of interest in the past two decades. While the elderly patients will not tolerate long periods of immobilization, it is still unclear how soon these surgeries need to be performed. There is widespread evidence in the literature that other outcomes including morbidity, the incidence of pressure sores, and the length of hospital stay could be improved by shortening the waiting time of hip fracture surgery. The optimal treatment for these injuries is surgery since non-operative treatment was associated with longer hospitalization, more mal-unions, and less likely to return to an independent level of functioning. It is then logical to perform early surgery for medically stable patients since prolonged immobilization is likely to increase the chance of pulmonary and urinary complications. However, for patients with significant co-morbidities, a longer period of pre-operative evaluation and optimization will be required.
Patients with hip fractures are often a heterogeneous group with different co-morbidities, and the individual treatment is affected by variable confounding factors and different treatment protocols. Earlier surgery was associated with a lower risk of death and lower rates of postoperative pneumonia and pressure sores among elderly patients with hip fracture. These results suggest that reducing delays may reduce mortality and complications. Early surgery < 24 hours was not associated with improved function or mortality, but it was associated with reduced pain and length of stay (LOS) and probably major complications among patients medically stable at admission. There was a trend towards fewer postoperative complications and shorter LOS in patients with a delay of less than one day to hip fracture surgery from the admission time. Increase morbidity and long hospital stay were found if surgery for hip fracture in elderly people was delayed more than 24 hours from the admission time. A mortality of 20-25% exists in these patients. The association of delay to surgery and mortality remains a subject of debate. One study concluded that time to surgery had no independent association with one-year mortality, while another suggested that, with adjustment of age, gender and co-morbidities delay of surgery beyond 48 hours from admission increased 6 months and one year mortality. The drive remains for early surgery for reasons stated above and majority of our patients underwent surgery within 48 hours (BOA recommendation) and that too in the absence of a dedicated geriatric unit.

CONCLUSION
We conclude that patients who present to these institutions with fragility neck of femur fractures are operated within the international time-interval guidelines suggested by the British Orthopaedic Association, but fall short of that suggested by the Scottish Intercollegiate Guidelines.

REFERENCES
Figure: 1  Sex distribution

![Sex distribution graph](image1)

Figure: 2  Age range

![Age range graph](image2)
Figure: 4 Types of hip fractures

Type of hip fractures

No. of patients

Extracapsular Intracapsular

DM HTN IHD ESRD CVA No PMH
Figure: 5  Procedures DHS/ Hemiarthroplasty

![Bar chart showing procedures DHS/Hemiarthroplasty by time interval](image)

Figure: 6  Reasons for delayed operation

![Bar chart showing reasons for delayed operation](image)