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Clinical outcomes for emergency department patients diagnosed with proximal humeral fractures

B. Mohammed[1], K. Connolly[2], N. Li Green[3], D. Molony[4], T. Coughlan[5], A. McCabe[3,5].

1. Department of Orthopaedics, Galway University Hospital, College Rd., Co. Galway, Ireland.
2. Geriatric Emergency Department Intervention Team, Tallaght University Hospital, Dublin 24, Ireland.
3. Department of Emergency Medicine, Tallaght University Hospital, Dublin 24, Ireland.
4. Department of Orthopaedics, Tallaght University Hospital, Dublin 24, Ireland.
5. Age Related Health Care, Tallaght University Hospital, Dublin 24, Ireland.
6. School of medicine, Trinity College Dublin, College Green, Dublin 2, Ireland.

Abstract

Aim

This study aimed to describe the epidemiology and outcomes of older adults diagnosed with proximal humeral fractures (PHFs) in an Irish adult emergency department (ED) and compare them with a younger cohort.

Methods

A retrospective single centre chart review was conducted on all admitted and discharged patients who had an ED discharge diagnosis of PHF in 2022.

Results

96 patients with PHF were identified. 53 patients (55%) were aged 65 and older and 42 (79%) were female. Older patients (≥65 years) with PHFs were more likely than the younger cohort (<65 years) to require admission (66.7% versus 33.3%, p<0.01). The average length of stay for those patients with PHFs was longer in the older cohort compared to the younger group (12.9 days vs 4.5 days, p=0.14).

Discussion

PHFs have a preponderance in older female patients and are associated with high length of stays. The majority of PHFs do not require operative management. Developing integrated care pathways for patients with PHFs could enable secondary prevention and early discharge.

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Introduction

Proximal humerus fractures (PHF) can have significant impact on an individuals' functional independence, especially those with frailty. They have been associated with mortality rates of 10% at one year in older adults.[1,2] Emergency departments (EDs) have a role in recognising these fragility fractures and some EDs have set up services to initiate secondary prevention management to improve outcomes.[3]

The study sought to characterize the management and compare outcomes between a younger and an older cohort of adult patients with PHF diagnosed in our ED.

Methods

This study is a retrospective single centre study in Tallaght University Hospital (TUH) adult ED over a one-year period (2022). Full approval was granted by the joint research ethics committee of St. James's Hospital and TUH (project id 2045).

Within our ED, the Gerontological Emergency Department Intervention (GEDI) interdisciplinary team screen patients aged 75 years and older Monday to Friday from 07:30 to 18:00. The GEDI team works to achieve early identification and proactive management of the physical, functional and social care needs of older patients.

Eligible patients to be included in our study were those patients aged ≥16 years who were diagnosed with a PHF in the ED. All patients who had a discharge diagnosis of humerus fracture identified from our ED information system and the patients with PHF were delineated.

Patients who had PHFs were subdivided into two cohorts: patients <65 years of age and patients ≥65 years of age and analysed to differences in outcomes. The independent t- test was used for the comparison of means and chi square test was used for categorical data.

Results

There were 54,963 presentations to Tallaght University Hospital ED in 2022. 126 patients were identified in the study period with a humerus fracture. The mean age was 58.7 years (SD± 19.2 years). PHFs were the most common accounting for 76.2% (n=96). Fractures of the midshaft and the distal humerus were less common at 15.9 % (n=20) and 7.9% (n=10) respectively. Only 26% (n=25) of PHFs required operative intervention, compared with 75% of midshaft humerus (n=15) and 100% of distal humerus fractures (n=10).

Of the 96 patients with a PHF, 55% (n=53) were aged 65 and older. In the ≥65 years of age group, seventy-nine percent (n=42) were female. The ED patient experience time was non-statistically longer in the ≥65-year-old group compared to the younger group (12.3 hours versus 8.26, p=0.09) Older patients with a PHF are more likely than the younger cohort to

require admission (66.7% versus 33.3%, p<0.01). There was no statistically significant difference in the number of patients who required operative management between the older (11 patients) and younger cohort (14 patients). (20.7% versus 33% respectively, p=0.54). The average length of stay for those patients with PHFs was non-statistically longer in the older cohort compared with the younger group (12.9 days versus 4.5 days, p=0.11).

There were 26 patients aged 75 years and older diagnosed with a PHF. Eleven patients were assessed by the GEDI team. Only 31% (n=8) presented to ED within GEDI operational hours. The mean clinical frailty scale of those assessed patients was 5. The GEDI team completed twenty-two inpatient multidisciplinary team referrals, four health and social care professional community referrals, one public health nurse referral and one application for an increase in a home care package.

Discussion

The study found PHFs are the commonest humeral fracture with a preponderance in an older female cohort. We also identified that PHFs are associated with high length of stays in older patients.

Our findings are consistent with international data. A Spanish study has observed significant increase in the PHF incidence in people over 50 years old, especially in women.[4] US data shows that most of older adults who sustain PHFs continue to receive non-operative treatment and increasing age is associated with admission.[5,6]

Early identification of factors that may impact patient outcomes may assist timely decision making in hospital settings.[7] Our GEDI team play an important role in the comprehensive geriatric assessment and onward referral of older patients. The findings of this study support the need to develop integrated care pathways including community based rehabilitation and assessment in age related health services.

The Irish major trauma audit has identified the preponderance of an older demographic, falling from a low height in their own homes.[8] Recent clinical guidance for the management of older trauma patients emphasises bone health assessment and fall assessment.[9] In our hospital, older patients diagnosed with suspected frailty fractures are assessed for the aetiology of their falls and referred to our colleagues in the bone health clinic for assessment and management.

The study has the inherit limitations of being a retrospective single centre study. The measures used in our study were surrogate outcomes. Future studies could look at the impact of integrated care pathways on functional outcomes such as return to living in their own homes.

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Declarations of conflicts of interest:

None declared.

Corresponding author:

Aileen McCabe
Department of Emergency Medicine,
Tallaght University Hospital,
Tallaght,
Dublin 24.
E-Mail: Aileen.mccabe@tuh.ie.

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