

Analysis of coding data and inpatient cause of death following hip fracture admission at two centres in South Yorkshire

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Introduction

Hip fracture is the most common fracture in adults over 60 years, affecting approximately 70,000 people in the UK in 2019. [1,2] Mortality after hip fracture continues to be high and the cost of hip fracture is estimated at £1.1 billion per year for the NHS. [3] It has been shown that there are key clinical indicators which can improve patient outcomes. These are monitored annually in the UK by the national hip fracture database (NHFD). [4] However, complications following hip fracture are common, and an understanding of what these are may help development of treatment or service pathways to help lessen their burden.

Methods

Our aim was to look at the demographics and clinical codes for patients admitted with hip fracture over a period of 1 year (2020) across 2 NHS trusts in South Yorkshire. Inclusion criteria reflected the inclusion criteria for the NHFD. Hospital Episode Statistic codes for complications during index admission and readmissions up to 1 year follow up were provided by information analysts and grouped according to ICD-10 categories. Cause of Death was identified from records in the medical examiner's offices for inpatient deaths and grouped into the five most prevalent categories (Infection, Cardiovascular, Frailty, Neuropsychiatric and other). Data were viewed and analysed in Microsoft Excel.

Discussion

This analysis of coding data confirms known complications following hip fracture. The reasons for readmissions are varied but were commonly for further musculoskeletal or orthopaedic conditions.

The majority of patient who died had infection and cardiovascular disease recorded in their Cause of Death. Mortality rates at both hospitals were cross referenced with the crude 30-day mortality data from NHFD. STH NHFD rates 12.8% vs 12.1% in this review; BH NHFD rates 14.8% vs 8.3% in this review. However, it should be noted that timeframes for NHFD differed to those in this review and may account for this variation. Considering the limitations of this analysis, 2020 was also impacted by the COVID-19 pandemic. Additionally, apart from some specific examples, the coding system does not allow for conditions to be labelled as acute or chronic. Accuracy of coding data entry is another limitation of these types of analyses.

Despite this, morbidity and mortality following hip fracture remains extremely high, reflecting the urgent need for novel therapies to enhance outcomes.

References

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2. Istianah, U., I. Nurjannah, and R. Magetsari, Post-discharge complications in postoperative patients with hip fracture. Journal of Clinical Orthopaedics and Trauma, 2021. 14: p. 8-13.
3. Leal, J., et al., Impact of hip fracture on hospital care costs: a population-based study. Osteoporos Int, 2016. 27(2): p. 549-58.
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Results

In total, there were 878 admissions for hip fracture in 2020, 312 at Barnsley Hospital (BH) and 566 Sheffield Teaching Hospitals (STH). Average age was 80.9 years at BH and 82.6 years at STH. The most frequent codes on admission were 'fall' and the most common inpatient complication was pneumonia, coded in 23% of patients.

174 (56%) individuals at BH had at least one readmission in the first year and 318 (57%) at STH. The codes for emergency readmission were varied, most commonly for musculoskeletal or orthopaedic conditions, including another fracture (see table 1).

30-day mortality across both sites was 10.8% and 30.8% at 1 year. The most commonly reported individual Cause of Death was pneumonia, in 26 of 66 inpatient deaths. Other condition categories recorded for Cause of Death can be seen in figure 1.

Table 1: Readmission codes

Clinical codes group in ICD-10 categories	Total %
Musculoskeletal and orthopaedic	16.4
Fracture	15.2
Respiratory including infection	10.5
Cardiac and Vascular	9.3
Gastroenterology including infections	9.1
Viral infection	8.9
Urogynaecology including infection	6.3
Falls and syncope	5.4
Psychiatric including Dementia and delirium	5.1
Neurological	3.7
Anaemia and haematology	2.8
Cancer	2.6
Metabolic	2.1
Sepsis	1.4
Other	1.2

Figure 1: Cause of Death

