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IMPACT of COVID-19 on hip fracture services

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International **Multicentre Project Auditing COVID-19 in Trauma & Orthopaedics Services**
survey: **the IMPACT of COVID-19 on hip fracture care**

INTRODUCTION

The annual incidence of hip fracture is 75,000/year in the U.K., where inpatient hospital costs are £1.1 billion/year, and the delivery of care is complex. The Coronavirus Disease 2019 (COVID-19) pandemic has resulted in major disruption to hip fracture care processes.(1) This frail patient group requires specialist care, and disruption to these services is likely to result in increases in morbidity, mortality and long-term healthcare costs.(2)

Although there was a reduction in activity-related trauma during the COVID-19 pandemic, the incidence of fragility trauma was observed to increase or remained unchanged over the same period.(3–5) A reorganisation of hospital services was required to meet the challenges of the pandemic, and the need to accommodate segregated inpatient areas, increase critical care capacity, and establish new wards for the management of COVID-19 patients caused disruption to hip fracture services.(6,7)

This study reports findings of the International Multicentre Project Auditing COVID-19 in Trauma & Orthopaedics (IMPACT) Services Survey, which assessed disruption to hip fracture services in 185 centres across 14 nations and considers the possible unseen effects on this vulnerable patient group.

METHODS

IMPACT is an emergency collaborative clinical network that was established in March 2020 in response to the COVID-19 pandemic, with supported from the Scottish Hip Fracture Audit (SHFA), Scottish Committee for Orthopaedics & Trauma (SCOT), and Scottish Government.(8) The IMPACT Services Survey was developed to investigate the effects of the pandemic on hip fractures services.

A questionnaire was designed for completion by a senior clinician or service administrator in each participating unit between April and September 2020. It was incorporated into existing national-level audits in Germany (n=71), Scotland (n=16), and Ireland (n=16). Responses from a further 81 centres were obtained via online survey (Survey Monkey, San Mateo, USA) from: UK (n=40); Spain (n=28); Italy (n=4); New Zealand (n=4); Sudan (n=2); Mexico (n=1); China (n=1); Colombia (n=1), and India (n=1).

Quantitative data

Unit characteristics collected were hospital trauma level, baseline annual hip fracture volume, change in hip fracture volume, and estimated COVID-19 prevalence. Measures of service change included redeployment rate (by staff group), access to theatre (percentage of normal), theatre efficiency (percentage of normal), and overall trauma service quality (rated as 'improved', 'worsened', or 'unchanged').

Qualitative data

Data were collected regarding staff and resource redistribution, patient-level management strategies, effect of suspected/confirmed COVID-19 status on patient-level management, and overall effects of COVID-19 on hip fracture service.

IMPACT Services Survey of COVID-19 in Hip Fracture

RESULTS

There were 185 units from 14 countries that returned the survey. Of these 45/185 (24.3%) were Level I Trauma Centres (equivalent to UK Major Trauma Centre), (9) 134/185 (72.4%) Level II or III Trauma Centres (UK Trauma Unit), and 6/185 (3.2%) hospitals that usually provide elective orthopaedic services.

There were 91/173 (52.6%) units that reported an unchanged volume of hip fracture admissions, with 74/173 (42.8%) that reported a reduction, and 8/173 (4.6%) an increased volume. Units that reported a reduction in case volume completed the survey earlier in the study period.

There were 102/160 (63.7%) units that reported a worsening of overall service quality, which was attributed predominantly to the redistribution of staff, reallocation of inpatient areas, and reduced access to surgical facilities. There was a high rate of redeployment of staff groups to other services, with two thirds having lost specialist orthopaedic nurses, a third orthogeriatrics services, and a quarter physiotherapists (Figure 1).

Reallocation of inpatient orthopaedic areas resulted in patients being managed by non-specialised teams in generic wards, which increased the movement of patients and staff between multiple clinical areas. Some centres reported the transfer of patients to separate 'cold' hospital sites for definitive orthopaedic management.

There was reduced operating department access with 74/160 (46.2%) centres reporting a >50% reduction. Reduced theatre efficiency was reported by 135/160 (84.4%) and was

IMPACT Services Survey of COVID-19 in Hip Fracture

attributed to staff and resource redistribution, longer anaesthetic and transfer times, and delays for preoperative COVID-19 testing and using personal protective equipment (PPE).

DISCUSSION

Almost two thirds (64%) of units who returned the survey reported a reduced overall quality of service during the study period. This was attributed predominantly to the redeployment of members of the hip fracture multidisciplinary team (MDT), a redistribution of inpatients areas, and a reduction in operating theatre access and efficiency.

High-quality hip fracture care delivered by an MDT according to evidence-based guidelines is associated with improved outcomes including length of hospital stay, post-discharge level of care, and mortality.(10–12) Redeployment of specialist staff and the consequent disruption to acute services may result in poorer survival and functional outcome, increased care demands, and an increased burden on health and social care services.

Patients with hip fractures are particularly vulnerable to acquiring COVID-19 and the prevalence in this group has been reported to be 13%, many times greater than the general population. A positive COVID-19 status is independently associated with a three-times increased mortality risk in hip fracture patients, and hospital-acquired infection may account for half of all COVID-19 cases within 30 days of admission.(1,13–15) The survey found variation in the strategies for the management of patients with suspected or confirmed COVID-19, which highlights the need for the development and continuous refinement of evidence-based methods to reduce in-hospital transmission, such as the use of patient pathways or 'circuits' to ensure the effective isolation or shielding of patients identified as being at risk of transmitting or acquiring the disease.(15,16) Furthermore the retention of inpatient orthopaedic areas is required to reduce the movement of patients and staff between multiple clinical areas, which is known to be associated with increased psychological stress,

IMPACT Services Survey of COVID-19 in Hip Fracture

delirium, increased length of stay, and mortality, and has been shown to be an effective strategy in the reduction of hospital-acquired COVID-19.(17,18)

The survey reported reduced operating department access and efficiency which resulted in delays to surgical management. Prolonged time to surgery is associated with higher complication rates, length of stay, and mortality in hip fracture, and safe early surgery remains the strategy of choice in the context of COVID-19.(19–21)

CONCLUSION

Protection of hip fracture services during a pandemic is essential to ensure satisfactory outcomes for this vulnerable patient group.

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FIGURES

Figure 1. Centres reporting the redeployment of staff from orthopaedic services during the study period.

