



The effect of the COVID-19 pandemic on hip fracture care: our experience at the University Hospitals of Leicester (UHL)

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The United Kingdom (UK) Covid-19 pandemic has led to unique changes in the operation of the National Health Service (NHS) including within trauma and orthopaedics. This has led to a significant impact on the NHS ability to provide hip fracture care and sustain emergency surgery. This has led to local hip fracture services changing operations to provide more sustainable care and significant impacts on best practice tariffs. Data was collected using the National Hip Fracture Database data submitted by UHL and split into two cohorts – Pre Covid-19 and Post Covid-19. Data has been collected for 67 consecutive patients in April 2019 (Pre Covid-19) and 87 consecutive patients in April 2020 (Post Covid-19) as of 4th May after the introduction of the Covid-19 measures locally. Data has been collected on demographics- age and sex, ASA, admission time, time of operation, 30 day mortality and length of stay. The average time to theatre in the pre Covid-19 cohort was 27.3 hours and in the post Covid-19 cohort was 45.1 hours. This is an increase of 65.2%. All patients in the pre Covid-19 cohort were operated on and 4 in the post Covid-19 were conservatively managed. However, there were no significant effects on 30 day mortality or length of stay. In conclusion, the measures taken due to the Covid-19 pandemic had a profound impact on the care of hip fracture patients with significant delays in time to theatre. As a result, it is clear that the measures influenced practice at UHL and the best practice tariffs were not met.

Keywords: Orthopaedics; Covid-19.

INTRODUCTION

The United Kingdom (UK) Covid-19 pandemic has led to unique changes in the operation of the National Health Service (NHS) with new models being created to provide service provision (1-3). These measures have included redeployment of staff, reregistration of retired staff, cancellation of elective services and reorganisation of theatre and recovery areas into intensive care beds. This local study aims to demonstrate the impact of these changes on the University Hospitals of Leicester (UHL) hip fracture service.

In the UK there are approximately 80,000 hip fractures a year admitted into emergency departments contributing to a substantial workload of the typical orthopaedic unit (4). The care and treatment pathway of hip fractures is recorded using the National Hip Fracture Database (NHFD) and a tariff is applied for performance as per the Best Practice Tariff (BPT) for

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each aspect of the patients care. For the treatment of these patients, it is widely known that early surgery is associated with reduction in mortality, morbidity and length of hospital stay (6, 7). This is reflected in the guidance as per the National Institute for Clinical Excellence (NICE) and the NHFD. Surgery should be performed within 36 hours on the day or day after admission as part of the BPT.

The UHL orthopaedic team manages over 500 hip fractures a year and over 800 were treated in 2019 (4). Pre Covid-19 there was a daily 8am to 5pm one theatre trauma list seven days a week at the Leicester Royal Infirmary (LRI). This service has been continued throughout the Covid-19 pandemic with 2 operating theatres at another site the Leicester General Hospital (LGH) – one available 8am to 5pm and one available 8am to 8pm. This alternate site takes direct admissions from the emergency department. This study aims to assess the impact of these measures and the Covid-19 pandemic on the UHL hip fracture services.

MATERIALS AND METHODS

Data was collected using the National Hip Fracture Database data submitted by UHL and split into two cohorts before and after the new measures.

This includes 67 consecutive patients in April 2019 (Pre Covid-19) and 87 consecutive patients in April 2020 (Post Covid-19) as of 4th May 2020 after the introduction of the Covid-19 measures locally.

Data has been collected on demographics- age and sex, ASA, admission time, time of operation and length of stay. All hip fractures including those who did not have operations were included. 30 day mortality was also recorded for both cohorts.

Ethical approval was not required.

RESULTS

In the pre Covid-19 cohort, the average age of patients (n=67) was 83.8 years with 17 male and 50 female patients with 2 ASA 1, 10 ASA 2, 39 ASA 3 and 15 ASA 4 patients. All of these patients were operated on.

In the post Covid-19 cohort, the average age of patients (n=87) was 82.9 years with 26 male and 61

female patients with 0 ASA 1, 12 ASA 2, 57 ASA 3 and 15 ASA 4 patients.

In the pre Covid-19 cohort, 79.7% (n=51) of patients went to theatre within 36 hours and 20.3% (n=16) of patients after 36 hours. The average time to theatre was 27.3 hours. The average length of stay was 13.0 days. The 30 day mortality was 1.96% (n=1).

In the post Covid-19 cohort, all parameters are correct as of 4th May 2020. 4 patients had not been operated on due to conservative management decisions. 31.3% (n=26) of the remaining patients went to theatre within 36 hours and 68.7% (n=57) after 36 hours. The average time to theatre was 70.3 hours. The average length of stay was 9.6 days (n=67) and 20 patients were still inpatients as of 4th May 2020. The 30 day mortality was 2.30% (n=2).

DISCUSSION

The results from this study into the UHL protocols for managing hip fractures during the Covid-19 pandemic have shown a negative effect on the targets to provide timely hip fracture operations.

There has been an average delay of 17.8 hours to theatre - an increase of 65.2% from the pre Covid-19 which was found to be similar to a small study performed in Queen Elizabeth Hospital London (8). This is a concerning percentage increase as many of these patients have multiple co-morbidities which affect their activities of daily living as demonstrated by their ASA scores. We do not currently know the long term effects of these delays as this has not yet been followed up, but delays to the surgical care of hip fracture patients have been associated with poorer outcomes in the long term.

As found in the small study in Queen Elizabeth Hospital, London the length of stay in the post Covid-19 cohort was reduced from 13.0 days to 9.6 days. This could be due to expediting discharge and avoiding exposure to Covid-19 as an inpatient which is consistent with NHS England guidance (3) for all fragility fracture inpatients during the pandemic. It would be interesting to follow up these patients in the community to analyse the effects of early discharge.

Furthermore, we also found that between the two cohorts there was an increase of 20 patients in April

2020 compared to April 2019, an increase of 29.9% perhaps due to the current challenges in community social care and care homes. It is also interesting to note that 4 patients in the post Covid-19 cohort and 0 in the pre Covid-19 cohort were conservatively managed. This is possibly due to the strains in theatre and the multimorbid state of these patients and the cross site operation at UHL.

In addition, it is important to analyse the main strengths and weaknesses of this study. The main strengths of this study are the direct comparison to best practice tariffs and including mortality figures. However, the main weakness is that it is only a 1 month snapshot of a pre-Covid-19 and post Covid-19 cohort and would be stronger as a multi-centre study over a longer period of time. It would also be useful to analyse this as a multi-centre study as there was a near total shutdown of elective orthopaedic services with more orthopaedic surgeons available for trauma during this period (9).

CONCLUSION

In conclusion, it is clear that the measures taken by the UHL hip fracture service due to the Covid-19 pandemic had a profound impact on the care of these patients. There was an increase in patients who did not meet best practice tariffs due to increases in average delay to surgery, increases in the number of patients being managed conservatively and decreased lengths of stay. Further larger studies are needed to analyse the impact of the Covid-19 pandemic on hip fracture care worldwide.

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