

A MULTI-CENTRE SNAPSHOT STUDY COMPARING ACUTE UROLOGICAL ADMISSIONS DURING THE COVID-19 LOCKDOWN TO A PRE-COVID PERIOD

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ABSTRACT

Introduction

COVID-19 has had a devastating effect around the globe with over 560,000 deaths and 12.8 million people now infected as of 13 July according to WHO, 2020. Our study looked at the pandemic's effect on acute admissions across two institutions compared to the same time (23 March to 30 April) in 2019.

Method

We collected data using records from the hospital's coding department, analysed patients discharge letters, and grouped patients by their final diagnoses. We also looked at variances in daily acute admission numbers. Statistical analysis was performed using the Chi-squared test and descriptive statistics.

Results

One hundred seventy-six patients were admitted in 2019 and 92 patients in 2020. There was a 58% significant reduction in acute admissions in 2020 ($p < 0.0000226$).

Five (5.43%) patients died in 2020 compared to four (2.27%) in 2019, and the most common presentation was renal colic, 23% rising to 29% in 2020.

Conclusion

There was a significant reduction in acute urological admissions during the UK lockdown period. Possibly as a consequence, the mortality rate doubled. Further analysis with larger cohorts is recommended for future studies.

Keywords: *COVID-19, patient admissions, renal stones*

INTRODUCTION

The transmission of beta-coronaviruses in the past twenty years have caused three pandemics: severe acute respiratory syndrome coronavirus (SARS-CoV)¹, Middle East respiratory syndrome coronavirus (MERS-CoV)², and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)³. The latter SARS-CoV-2 virus was

infamously redubbed as Coronavirus disease 2019, or COVID-19 for short.⁴

On 23 March 2020, the UK government introduced social distancing measures backed by new legislation known as the Coronavirus Act 2020 and enforced by the police.⁵ Many trusts within the National Health Service (NHS) were forced to provide reduced elective

and outpatient services to accommodate bed space and resources for the influx of COVID-19 patients and efficiently manage any acute non-COVID admissions.

Despite the measures taken, it was noticed nationally that acute admissions sharply declined during the lockdown period.

This snapshot multicentre study looked at the number of acute urological admissions and outcomes during the early to mid-period of the UK lockdown, compared to the same period in 2019.

METHODS

Data were retrospectively gathered from two NHS trusts in 2019 and compared to prospective data collected in 2020. Admission numbers during the lockdown period of 23 March to 30 April 2020 were compared to the identical time points in 2019. Data was collected with help from the coding department, as well as online clinical notes.

Patients that were seen acutely but not admitted were not included in the data. All acute admissions were categorised into eight categories (Figure 1), including

renal calculi, haematuria, acute retention, urosepsis, cancer, testicular issues, renal failure, and others.

Cases coded as haematuria were not known to have cancer. Those who presented with haematuria and had a pre-existing cancer diagnosis were coded as a cancer and analysed under this category in our data.

Diagnoses coded as “other” included patients who presented with nephrostomy complications, hyperkalaemia, or suprapubic catheter change and non-specific pain.

We used the Chi-squared test and descriptive statistics for analysis of our data.

RESULTS

In 2019, there were 176 acute admissions, while in 2020 there were 92 during the lockdown period; a significant 58% reduction ($p < 0.0001$) with a 2.27% and 5.43% mortality rate, respectively (Table 1).

In 2019, 40 (23%) patients were admitted with renal stones, which fell to 27 (29%) in 2020. Fifteen patients (16%) were admitted with haematuria in 2019, which rose to 35 (20%) in 2020. Of those admitted

FIG. 1 Eight categories for acute admission to urology between the lockdown period in 2019 and 2020.

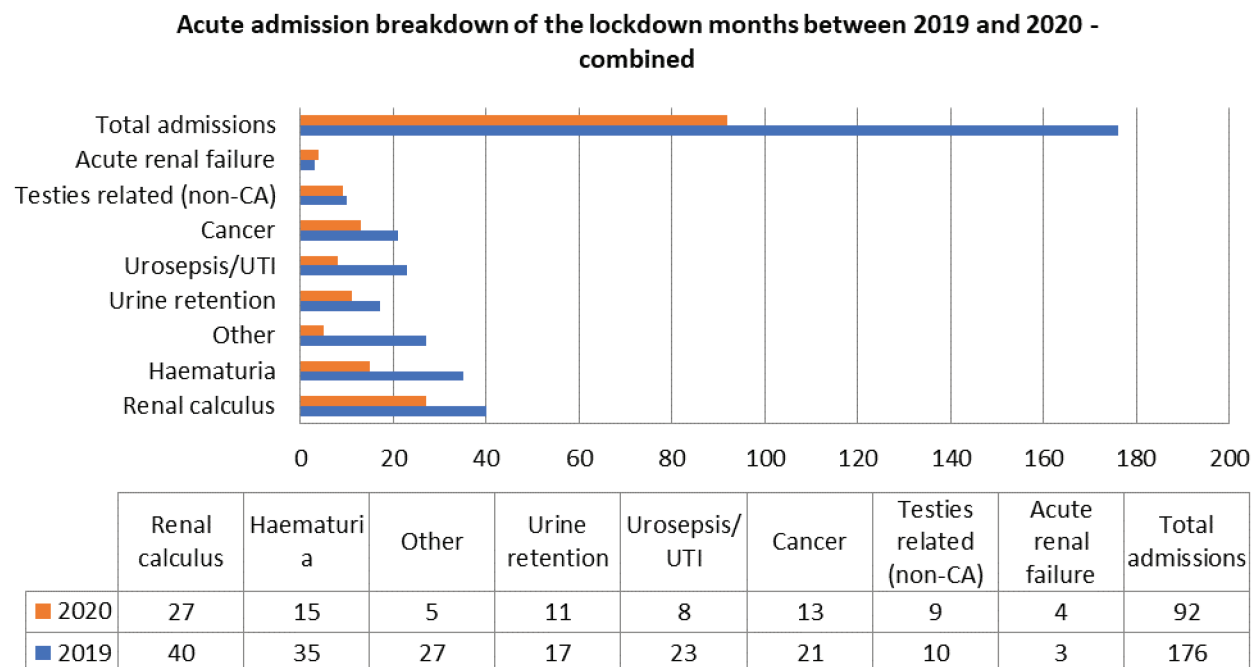


TABLE 1 Total Number of Acute Admission and Its Related Mortality Rate between the Lockdown Months of 2019 and 2020.

	2019	2020
Total number of acute admissions	176	92
Total number of hospital deaths	4	5
Mortality rate (%)	2.27%	5.43%

with urosepsis or a urinary tract infection (UTI), 23 (13%) were recorded in 2019, falling to 8 (9%) in 2020. Patients presenting with cancer-related issues was 21 (12%) in 2019, falling to 13 (14%) in 2020. 17 (9%) presented with urinary retention and falling to 11 (12%) the following year. For testes related issues (non-cancer), 10 (9%) were admitted in 2019, falling to 9 (10%) in 2020. Acute renal failure was the least common presentation at 3 (4%), increasing to 4

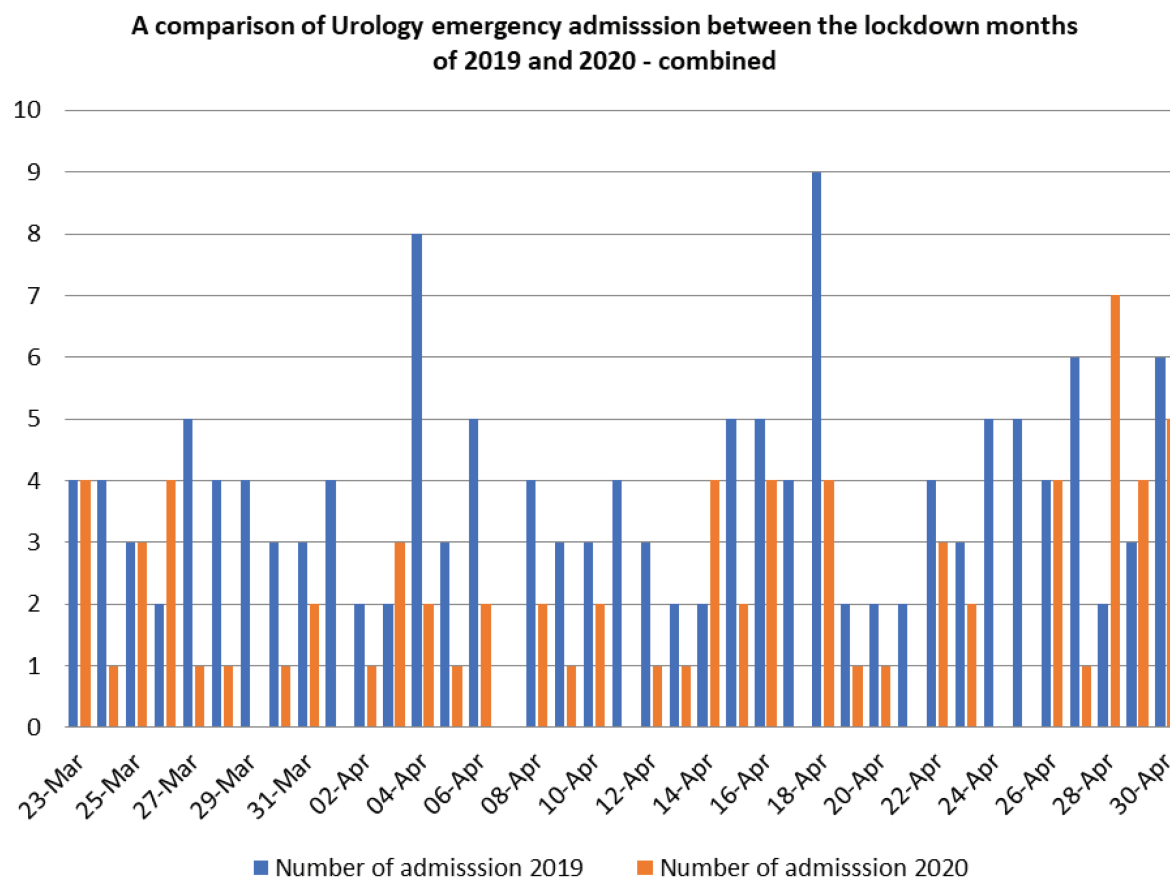
(4%) in 2020. Twenty-seven patients (15%) fell into the 'other' category in 2019, falling 5 (6%) in 2020.

From (Figure 2), the highest number of patients admitted in a day in 2019 was nine, and seven in 2020. There were two spikes of eight and nine admissions on the 4th and 18th of April in 2019 respectively, compared to 2020 when there were seven and five patients on the 28th and 30th of April.

DISCUSSION

Although admission data was not collected for the past 10 years to study the trend of acute admission numbers, there was a significant 58% decrease in acute admissions between 2019 and 2020. Admission rates were lower in all categories in 2020, except for testicular related issues and acute kidney injury. With a reduction in admission rate, the mortality rate however,

FIG. 2 Bar chart plot of daily acute admissions against days of the month from 23 March to 30 April in 2019 and 2020.



more than doubled in 2020 from 2019, which could be down to delayed presentation and subsequently resulting in a clinically sicker patient on admission to hospital. Furthermore, this could also show that perhaps not all acute admissions are as inappropriate as we perceive them to be despite the number.

At the start of the lockdown in 2020, fewer people presented to hospital, as can be seen by the numbers at the end of March compared to the tail end of April where more patients were presenting to hospital (Figure 2). A reason for this could be due to the public's perception of COVID-19 easing towards the end of lockdown and subsequently reduced fear of leaving the house.

Throughout the COVID-19 pandemic, our department had partnered with a private hospital in the same city to carry out elective procedures for urgent oncological services only. Outpatient services were reduced to teleconsultations, and routine elective procedures were delayed. Therefore, one can hypothesise that with a reduction of service, there could be an influx of emergency admissions that would have been prevented by outpatient appointments, yet our data did not support that. As previously mentioned, our data does not support any trends in 2020 admission numbers (Figure 3), and admission rates were variable throughout this period.

A survey conducted on 30 March by Ipsos Mori revealed that the public was adhering to social distancing and wearing facemasks, as they believed the virus posed a threat.⁶ By 29 May, Ipsos Mori revealed in a study that the UK public were mainly staying at home, although 35% of respondents said they had to postpone seeking medical care unrelated to COVID-19. It was also found that 17% had to cancel their treatment due to COVID-19 disruptions, which could explain the steady rise in admissions towards the end of April 2020.⁷

A further study performed by a tertiary hospital in Turkey by Tinay et al. noted that there was an increase in patients attending with higher ASA grades in 2020 compared to 2019, often requiring emergency surgery.⁸ Given that they had to cancel all surgeries, this could have been the reason for an increased presentation of patients with multiple comorbidities than expected.⁸

It will be interesting to see the further impact of COVID-19 on admissions as the lockdown gradually relaxes.

CONCLUSION

We found a significant reduction of acute admissions to urology during the 2020 UK lockdown period, most likely related to public fear of contracting COVID-19 when coming to hospital. However, patients who did present to hospital were clinically more unwell due to the delay, often requiring emergency surgery.

Death rates were higher in 2020, but whether this is significant needs further evaluation. Higher cohort numbers from other institutions would provide more robust data for future studies.

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