

The Impact of COVID-19 Pandemic on Urological Emergencies: A Multicenter Experience on over 3,000 Patients

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Keywords

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Abstract

Objective: COVID-19 pandemic represents a dramatic challenge for healthcare systems worldwide, and it also affects daily urological practice. After China and Italy, Tessin (Switzerland) has been hit the hardest, due to its close proximity to Lombardy and the high number of frontier workers in the area. Our objective was to share with the scientific community how, during the COVID-19 period, there has been a huge modification in urological emergencies throughout all hospitals included in the Ente Ospedaliero Cantonale (EOC). **Methods:** We retrospectively reviewed urgent urological consultations requested by the emergency department (ED) of the 4 public hospitals located in Tessin belonging to EOC in the 3-month period between February 15 and May 15, 2020, and compared them to the 2 previous years cases within the same time frame (February 15 to May 15, 2018 and 2019). The number of daily consultations, urgent invasive procedures performed, and admissions were evaluated. **Results:** The final sample resulted in 594 consultations performed in 2020, 974 in 2018, and 974 in 2019. A higher num-

ber of daily consultations were performed during 2018 and 2019. The number of daily admissions dropped consistently during the COVID-19 pandemic (737 vs. 392). **Conclusions:** Our multicenter study aimed to quantify changes in urgent urological care in Tessin in the midst of the COVID-19 pandemic. Urgent urology practice was dramatically affected with a remarkable reduction in urgent urological consultations, whereas a higher risk of admissions was observed in 2020, due to the severity of the patients.

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Introduction

A new worldwide pandemic was declared by the WHO on March 11, 2020 [1], after the rapid diffusion of a respiratory disease (COVID-19) caused by a newly discovered coronavirus (SARS-CoV-2) which was notified to the WHO by Chinese authorities on December 31, 2019. The novel coronavirus, now designated SARS-CoV-2, was first reported in Wuhan, China [2]. After spreading in the Hubei region in China, the virus reached several different countries. Italy, especially the region of Lombardy, was one of the first areas to be hit, with the first cases reported on February 21, 2020.

Tessin, which is the southernmost canton of Switzerland, directly bordering on Lombardy, was hit immediately, and the pandemic caused almost 1,000 cases/100,000 inhabitants, more than in Lombardy where it caused 827 cases/100,000 people. Hospitals and clinics were reorganized to respond to the growing outbreak. Although no extreme restrictions were put on the movements of citizens as in other countries (e.g., Italy), people were asked to avoid unnecessary movements and hospital accesses. The official “lockdown” was declared on March 16 until April 27, with gradual reopening to follow.

During the COVID-19 lockdown period, the urology departments of all 4 Ente Ospedaliero Cantonale (EOC) hospitals experienced an unexpected noticeable reduction in urgent urological consultations requested by the emergency department (ED). We hypothesized that during the COVID-19 outbreak, daily urgent consultations might be reduced compared to the same period in the previous years because of more thoughtful access to the service during the pandemic: patients presented to the ED for real urgent needs, whereas they sometimes tend to use the ED to speed up nonurgent consultations.

Materials and Methods

Emergency consultations in EOC hospitals are registered through institutional software, and the authors (A.G. and G.M.) reviewed each urological report to assess the fulfillment of inclusion criteria. A retrospective review of urgent urological consultations requested by the ED of the 4 public hospitals located in Tessin belonging to EOC in the 3-month period between February 15 and May 15, 2020, was performed.

The data were then compared to the 2 previous years cases within the same time frame considering the mean of data from 2018 and 2019 (February 15 to May 15, 2018 and 2019). Pediatric population (age < 16 years) was examined in case of need in the ED, but not operated as all surgeries in children are treated in the dedicated pediatric surgery department in EOC hospital in Bellinzona. Patients admitted for urological conditions who tested positive for SARS-CoV-2 were transferred to Locarno where the EOC hospital “La Carità” was entirely dedicated to COVID-affected patients, who could benefit from urological (and other specialist) care.

The number of daily consultations, urgent invasive procedures performed, and ward admissions were evaluated. Data collected were age, sex, total number of consultation performed, diagnosis of discharge/admission, urgent surgeries performed after ED admission, and days of hospitalization.

Distributions were summarized using frequencies, means, and interquartile ranges. Different tests were performed in order to model the association between continuous and categorical variables (Mann-Whitney U test and Pearson’s χ^2 test). Statistical significance was set at $p < 0.05$. All statistical analyses were performed with IBM SPSS Statistics, Version 26 (IBM Corp., Armonk, NY, USA)

Table 1. Patients’ characteristics

Year	2020	Mean of 2018–19
Patients	594	974
F	194	418
M	400	556
Average age	55	55
Ambulatory patients	392	737
Patients admitted to hospital stay	202	237
Average hospital stay, days	4.8	5
Total urgent surgeries	70	68.5
Type of surgery (most frequent)		
Stent positioning	40	43
TURV	11	7.5
URS	12	13.5
Urethral stenosis dilatation	2	2
Abscess drainage	1	0
Nephrostomy positioning	2	1
Diagnosis (most frequent)		
Urinary infection	230	436
Renal colic	137	199
Acute urinary retention	37	57
Hematuria	35	61
Re-admissions <7 days	24	41

Results

Out of 3,130 cases, some had to be excluded from the final sample because a few patients were admitted to the ER with urological diagnosis but were then dismissed with a different one (e.g., muscular back pain instead of renal colic). We therefore identified 2,542 urological emergency admissions: 594 urological consultations in EDs in 2020 and 974 in the corresponding period of 2018 and 2019 (they were accidentally exactly the same number in both years). That corresponds to a 39% year-on-year decrease in the overall number of consultations.

Table 1 summarizes the clinical characteristics of the patients. None of the variables analyzed has proved a p value < 0.05, except for the diagnosis of admission (0.03) nevertheless our finding were quite interesting.

The most common clinical diagnoses during the pandemic were urinary infections, renal colic, acute urinary retention, and gross hematuria. Following the ED consultation, during the pandemic, a higher percentage of patients were hospitalized for urological conditions (34 and 24% in 2020 and 2018/2019, respectively).

There were several interesting findings: first of all, a substantial decrease in the number of urgent urological consultations was observed. The prevalence of severe

conditions was unchanged (especially those requesting surgical intervention), whereas less severe clinical diseases, such as uncomplicated urinary infections, decreased dramatically. The number of inward admissions was similar throughout the years. In 2020, 11.8% of patients seen in the ED underwent surgery, compared to 7% in 18–19.

We noticed a more interventional attitude in 2020 that is mainly attributable to the need to resolve the patients' clinical problem (e.g., recurrent renal colic), preventing them from returning to the hospital, which could have increased the risk of contagion. Furthermore, the patients presenting during the pandemic were more serious cases compared to normal times, therefore needing urgent interventions.

Discussion

Tessin has been strongly hit by the pandemic, experiencing 348 deaths, on a population of 350,000 inhabitants. With the contagion reaching a pandemic impact, health authorities imposed a marked reduction of all surgical activities, as also suggested by various urological societies, approving the performing of only urgent or oncological nondeferrable procedures [3].

Various authors stated how a sudden decline in surgical activity can cause a potential harm particularly in the oncological field [4]. The unexpected drop in emergency care accesses has to make us reconsider how the service is normally used by the populations. One plausible explanation of the low number of admissions during the COVID-19 period is that the fear of being infected by the virus in the hospital might have reduced the number of “improper” accesses that usually clog the EDs in Tessin, as in Italy and other countries.

On the other hand, during the pandemic, some patients might be reluctant to seek medical evaluation even when actually requiring prompt consultation by a specialist. Some patients called the general practitioner (in Switzerland, as in many other countries, patients were invited to call the doctor before presenting at the ambulatory, as to avoid crowds and unnecessary consultations) and tried to solve their problems without leaving the house.

This attitude might be correct and solve only part of the morbid conditions (e.g., uncomplicated infections, etc.), but sometimes it is not sufficient to obtain a proper diagnosis or a timely treatment (e.g., septic urinary obstruction due to a stone). The consequences of this scenario are difficult to estimate, since more time is required

to show the long-term effects of a delayed diagnosis, especially for oncological cases; we can easily imagine a patient who experienced hematuria but decided to stay home and wait for it to solve, but has a bladder cancer, which has not yet been diagnosed.

It is widely known that in Tessin, as in Italy and other countries, ED access is frequently abused by the patients, which might take advantage of the service to speed up their diagnostic pathways in case of nonurgent needs. Therefore, during the pandemic, a dramatic drop in consultations was expected. The importance of this aspect should not be underestimated as it demonstrates that the high rate of unnecessary consultations performed in ordinary times leads to overloading the system, consuming time and resources. In case of a 2nd pandemic peak, urologists should be ready to offer an emergency service to patients who really need urgent care but also deal with patients presenting less severe problems who could maybe benefit from a telephone consultation or a dedicated ambulatory service.

Furthermore, due to the drop in consultations and surgeries (as decided by health authorities), we can now estimate the working load and reallocate the abundant resources to help our colleagues directly dealing with SARS-CoV-2 affected patients.

The present report has some limitations; first, those related to its retrospective design. Additionally, although it is likely that these same patterns have been observed in most specialties, our report is limited to urological data.

Acknowledging these limitations, the current article represents to our knowledge the first document so far exploring the impact of SARS-CoV-2 on the access to emergency care for patients with urological conditions throughout the entire period of peak (February–May 2020), analyzing the data of all EDs in the area, in one of the most affected regions in the world.

Conclusions

Our multicenter study aimed to quantify changes in urgent urological care in Tessin during the COVID-19 pandemic. Urology practice was heavily affected with a remarkable reduction in urgent consultations. This dramatic documented drop of accesses in EDs during the first (and hopefully last) peak of pandemic can lead us to important conclusions on the chance for reallocation of healthcare personnel resources in case of a new peak. The pandemic has taught us that continued restructuring of the healthcare system is mandatory to continue providing

a high level of care to both patients affected by COVID-19 and to those suffering from other pathologies.

We should be ready to assist our urological patients in less ordinary ways, such as phone consultations or home medical examinations. Possibly in the future, these unconventional ways of consultation might become preponderant; we shall be ready to respond to mutated world health conditions.

Statement of Ethics

No Ethical Committee approval was needed as the study is retrospective.

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Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

All the authors contributed to the design of the work, the acquisition and analysis of data for the work, and drafting the work and approved the final the version to be published.