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Research Article

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Impact of COVID-19 pandemic on urology practice: A single-center experience

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Abstract. *The present study aimed to evaluate the impact of the Coronavirus disease (COVID-19) pandemic on the urology outpatient clinic and provide objective data for the allocation of the resources during the pandemic.*

Materials and methods. The patient records who were admitted to our Hospital Urology outpatient clinic during March 20th - May 29th, 2019, and March 20th - May 29th, 2020 has been evaluated and constituted two groups as Non-Pandemic Group and Pandemic Group according to application date. Groups have been compared according to demographic and cohort-specific variables.

Results. There has been a statistically significant difference between groups according to age, gender, admission, prescription, and hospitalization rates. During the pandemic period, we found that the rates of patient admission, frequency and the number of hospitalizations decreased, and the rate of prescribing increased. Also, we found that male patients aged 18-65 years were admitted more frequently during the pandemic period.

The analysis of the subgroups constituted according to diagnostic segmentation revealed that the patients with lower urinary tract symptoms and pediatric urology patients decreased while infertility and infection groups were increased.

Conclusion. The urology outpatient clinic has been affected by the COVID-19 pandemic from various perspectives. This alteration should take into consideration for the planning of the services during a pandemic.

Keywords: COVID-19, pandemic, urology, outpatients.

Conflict of interest statement. The author declares no competing interest.

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Вплив пандемії COVID-19 на урологічну практику: досвід одного центру

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Резюме. Метою роботи було оцінити вплив пандемії COVID-19 на урологічну амбулаторну практику та надати об'єктивні дані щодо розподілу ресурсів під час пандемії.

Методи. Медична документація пацієнтів, які звертались за допомогою до нашої урологічної амбулаторії у період з 20 березня по 29 травня 2019 року та з 20 березня по 29 травня 2020 року були оцінені як Непандемічна група та Пандемічна група відповідно до дати звернення. Групи порівнювали за демографічними та когортними змінними.

Результати. Визначено статистично значущу різницю у віці, статі, кількості госпіталізацій та призначень залежно від періоду звернення. Так, під час пандемічного періоду кількість прийому пацієнтів, частота та кількість госпіталізацій зменшувались, тоді як кількість рецептурних призначень лікарських засобів зростала. Крім того, визначено, що пацієнти чоловічої статі у віці 18-65 років частіше звертались під час пандемії у порівнянні зі старшою віковою групою. Аналіз підгруп, складених відповідно до діагностичної сегментації продемонстрував, що кількість звернень з симптомами нижніх відділів сечової системи та педіатричної урології зменшилася, а групи безпліддя та інфекцій збільшились.

Висновок. Пандемія COVID-19 суттєво вплинула на урологічну амбулаторну практику з різних точок зору. Визначені зміни повинні враховуватись під час планування спеціалізованої медичної допомоги під час пандемії.

Ключові слова: COVID-19, пандемія, урологія, амбулаторні пацієнти.

Introduction. Coronavirus disease (COVID-19) has started in December 2019 in Wuhan, China. It has spread all over the world in a couple of months. The World Health Organization has announced the COVID-19 disease as a pandemic on 11th March 2020 [1].

The first COVID-19 case has been diagnosed on 9th March 2020 and the first death has been announced on 17th March 2020 in Turkey [2]. After the immediate rise of the COVID-19 cases, the Ministry of Health has declared a national plan and most of the hospitals have revised the terms of services according to the legislation of the Ministry of Health [2].

Before the COVID-19 pandemic, our hospital provides standard urologic care with 5 urologists in 3 outpatient clinics. Our department has service with 20 beds, one surgery room, one cystoscopy room, and an extracorporeal shock wave lithotripsy unit. After the pandemic legislation on March 20th, 2020, we have reduced the outpatient clinic to one room. Our service has been assembled with other surgical departments in a single isolated service. Only surgeries with an emergency have been performed during the period. On May 29th, 2020, a controlled normalization period has started and most of the services have been normalized after this date.

This study aims to evaluate the impact of the COVID-19 pandemic on the urology outpatient clinic in a single secondary center and compare the non-pandemic and pandemic periods and also, provide objective data for allocating resources during the pandemic.

Material and Methods. The present study was performed following the principles of the Declaration of Helsinki. Ethics approval was taken from the institutional review board of the Adana City Training and Research Hospital (approval date 29.07.2020, Protokol number 1001). A retrospective review of urology outpatient clinic records has been obtained which belongs to March 20th - May 29th, 2020 period at our hospital, and the records of the same period of 2019 have also been collected for comparison. The age, gender, admission time, number of admissions, diagnosis, prescription, and hospitalization status have been noted. Inpatient and emergency consultations and administrative examinations were excluded from the cohort.

At Our Urology Department outpatient clinic, 3 urologists had provided service with 3 dedicated rooms at 08:00 - 17:00 working hours before the pandemic. While patients with appointments had been accepted in an order, patients without an appointment had been accepted according to the availability of the physicians. During pandemic restriction, only one urologist provided outpatient clinic service to only patients with an appointment.

To minimize exposure risks to patients and staff, a triage desk was placed at the entrance of the outpatient

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clinics and, all patients were questioned for the symptoms of COVID-19 and measured the body temperature. None of the patients with COVID-19 or patients with suspicion of COVID-19 were accepted in the outpatient clinic and excluded from the study.

After collecting the data, two groups were constituted according to the admission date. Patients admitted to the urology outpatient clinic between March 20th - May 29th, 2019, and March 20th - May 29th, 2020 were allocated to the Non-Pandemic group and Pandemic group respectively.

SPSS version 21.0 (IBM, Armonk, NY) was used for statistical analysis. Distributions were summarized

using frequencies. Independent sample t-test, ANOVA test, Mann–Whitney U test, and Chi-squared test were used to research the association between continuous and categorical variables as appropriate. Any p-value of less than 0.05 was considered statistically significant.

Results. A total of 3484 different patients were admitted to urology outpatient clinic 4417 times during both non-pandemic and pandemic term. The admission number per patient was statistically different in non-pandemic and pandemic terms (1.31 and 1.14 times per patient respectively, $p < 0.001$). The distribution of the patients according to pandemic groups presented in Table 1.

Table 1

The differences between the Non-Pandemic and Pandemic groups

		Non-Pandemic Term	Pandemic Term	p-value
Number of the Patients		2540	944	N/A
Number of Admissions		3337	1080	N/A
Admission Rate per patient		1.31	1.14	< 0.001
Age (Years $\pm$ SD)		50.3 $\pm$ 19.7	46.4 $\pm$ 18.3	< 0.001
Age Group N (%)	<18	205 (6.1)	39 (3.6)	< 0.001
	18-65	2301 (69)	858 (79.4)	
	>65	831 (24.9)	183 (16.9)	
Sex N (%)	Male	2173 (65.1)	787 (72.9)	< 0.001
	Female	1164 (34.9)	293 (27.1)	
Prescription N (%)	Yes	1650 (49.4)	621 (57.5)	< 0.001
	No	1687 (50.6)	459 (42.5)	
Hospitalization N (%)	Yes	181 (5.4)	12 (1.1)	< 0.001
	No	3156 (94.6)	1068 (98.9)	

The admission numbers during the non-pandemic and pandemic terms for the week of the year could be seen in Figure 1.

Fig. 1. Comparison of the patients' number according to the week of the related year.

The mean ages were 50.3 years and 46.4 years non-pandemic and pandemic terms respectively ($p < 0.001$). The distribution of the admissions according to age groups was also significant ($p < 0.001$). The patients between 18-65 years old had a higher rate in pandemic term while patients belong to <18 and >65 years groups have relatively lower rates comparing the non-pandemic term.

There was a statistically significant difference between groups according to gender ($p < 0.001$). The rates of male and female patients were 65.1% and 34.9%

respectively in the non-pandemic term. This rate was increased favoring the men in the pandemic term that the rates were 72.9% and 27.1% for male and female patients respectively.

There was a statistically significant difference between groups in terms of prescription and hospitalization rates. The prescription rates increased during the pandemic term while the hospitalization rates were decreased. All results have been presented in Table 1.

The distribution of patients according to diagnostic groups has presented in Table 2.

Table 2

Comparison of the groups according to diagnostic subgroups

	Non-Pandemic Term	Pandemic Term	p-value	Trend
Urinary Stone	711(21.3%)	250 (23.1%)	0.2	stable
Lower urinary tract symptoms	812(24.3%)	201 (18.6%)	<0.001	decrease
Infection	286(8.6%)	161 (14.9%)	<0.001	increase
Other	510(15.3%)	148(13.7%)	0.22	stable
Neurourology/Incontinence	454 (13.6%)	131 (12.1%)	0.23	stable
Infertility	103 (3.1%)	75 (6.9%)	<0.001	increase
Sexual Dysfunction	166(5%)	52 (4.8%)	0.87	stable
Oncology	59 (1.8 %)	27 (2.5%)	0.13	stable
Hematuria	93 (2.8%)	20 (1.9%)	0.1	stable
Pediatric Urology	143(4.3%)	15(1.4%)	<0.001	decrease

There was a statistically significant increase in infection and infertility patients while a decrease was observed in patients with lower urinary tract symptoms

(LUTS) and pediatric urology patients. Figure 2 shows the distribution of the diagnostic groups in pandemic and non-pandemic terms.

Fig. 2. Distribution of the patients according to diagnostic groups.

Discussion. The COVID-19 pandemic caused major alterations in healthcare systems across the world [3]. Various suggestions have been made to delivering urological care while protecting both patients and healthcare professionals [4]. Outpatient clinics have been affected by the pandemic and appointments were postponed or canceled [5]. This study tried to demonstrate the effect of the pandemic on the urology outpatient clinic. Patients' admissions, re-admissions, and hospitalization rates were decreased while prescription rates increased during the pandemic period.

The major result of the study is the decrease of applications to outpatient clinics by almost 68%. Besides, the admission rate per patient fell from 1.31 to 1.14. The decrease in both variables is already anticipated and expected due to restriction legislation. On the other hand, the study results showed the decrease rate objectively and expressed with the exact numbers. In their study, Collins et.al. showed that the decrease in outpatient referrals was 52% comparing with the none pandemic era on the same dates the previous year. However, their hospital is a tertiary center with high volume urologic procedures and conducted an outpatient service over the phone during the restricted period [6].

There was a difference between the mean ages in the groups. However, this result is not interpretable due to legislation of curfew to the over 65 and below 18 years old population during the pandemic term in Turkey. On the other hand, the difference between groups according to sex was statistically different. The female population admitted to the urology outpatient clinic during the pandemic term has significantly decreased (see Table 1).

Another interesting difference has been observed in the prescription and hospitalization rates. While prescription rates were increased, hospitalization rates were de-

creased during the restriction period compared to 2019. According to this result, it would not be wrong to speculate that there is a difference in the behavior of the urologists enforcing the outpatient treatment until the hospitalization is an obligation for the patient.

There was also a statistical difference between the groups according to diagnostic groups. Infertility and infection patients have increased while patients with LUTS and the pediatric group has decreased. The decrease of the pediatric and LUTS group could be explained by the restriction to the child and old people. The increase of the infertility patients admitted to urology outpatient has been explained by the prolonged lockdown of health services providing high-complexity fertility treatments [7]. On the other hand, the rising rate of the patients with urinary infective symptoms is a challenging finding to interpret which, could be dependent on the delay of primary care [8]. There are also some cases reported in the literature with urinary frequency as a major symptom in COVID-19 patients [9]. This study cannot speculate about the effect of the coronavirus on the urinary system. However, our results need to be confirmed with future prospective studies.

Conclusion. The COVID-19 pandemic has made a shocking effect on the global health system. Urological care is mostly maintained for emergency and cancer patients. In our secondary center, the urology outpatient clinic has provided a service with limited resources. On the other hand, the results of this study provide noteworthy information for future arrangements of the urological services, especially outpatient clinic.

Informed Consent. Retrospective study

Conflict of Interest. No conflict of interest is declared by the author.

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