



The Early Impact of COVID-19 Pandemic on Surgical Urologic Oncology Practice in Turkey: Multi-Institutional Experience From Different Geographic Areas

Ilker Tinay, Ender Ozden, Evren Suer, Ozan Bozkurt, Volkan Izol, Bahadir Sahin, and Levent Turkeri

The human spread of a novel beta-coronavirus, that is, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first reported in Wuhan in December 2019.¹ COVID-19 was then designated as the name of the disease resulting from this infection which is short for “Coronavirus Disease 2019.”¹ COVID-19 has been declared as a pandemic by the World Health Organization on March 11, 2020, which is also the date when the first confirmed case in Turkey has been announced by the Ministry of Health. As in other countries, number of cases increased over time in correlation with the increasing number of testing as well as spread of the virus and as of April 30, 2020 there were 120,204 confirmed cases in Turkey, which ranked as seventh after Germany. On April 11, 2020 almost 4 weeks after the first case, Turkey reported highest number of new cases per day and since then numbers for daily new cases started to decrease.² Unlike many other European countries, there was no nationwide lockdown in Turkey and only certain age groups (≤ 20 and ≥ 65 years of age) are exposed to lockdown measures.

Like in many countries worldwide, urological practice in Turkey has also been limited to emergency procedures and selected oncological surgeries in order to use available resources for COVID-19 treatments. General recommendations for daily practice in urological oncology has been published recently from different sources,^{3,4} however a potential concern has been raised if these recommendations can be applicable to different populations from different geographical areas of the world, which can be affected by national resources, socio-cultural circumstances and restrictive administrative regulations. In this

report, we wanted to investigate the early impact of COVID-19 pandemic on surgical urologic oncology practice in Turkey during the first 4 weeks after the first confirmed case compared to the same time interval in 2019. Retrospective data of patients from March 11 to April 11, 2020 and 2019 were collected from 5 major reference institutions (Samsun Ondokuz Mayıs University, Adana Cukurova University, Izmir 9 Eylul University, Ankara University and Istanbul Marmara University) in 5 different geographical areas of Turkey.

Non-deferrable uro-oncological procedures were defined according to recently published expert opinion papers on patient triage during the pandemic^{3,4} and so we only included patients with most common urological cancers and most commonly performed surgeries, namely urothelial carcinoma [primary transurethral resection of bladder tumor, second transurethral resection of bladder, radical cystectomy, radical nephroureterectomy], kidney cancer (partial nephrectomy and radical nephrectomy) and prostate cancer (radical prostatectomy)]. A total of 200 patients in 2019 and 90 patients in 2020 are included in this study and demographic data of these patients are shown in [Table 1](#).

Distribution of nondeferrable procedures for urothelial carcinoma, renal cell carcinoma and prostate cancer during study period (2019 vs 2020) is shown in [Table 2](#). Number of all surgical procedures has been decreased but the distribution of surgeries for urothelial carcinoma did not change significantly. We observed a trend for not performing partial nephrectomy for small renal masses and surgeries for kidney cancer were limited mostly to radical nephrectomies and partial nephrectomy for selected cT1b and \geq cT2 tumors. In prostate cancer, there was a major shift to perform radical prostatectomy for unfavorable intermediate and high-risk patients.

The use of minimally invasive surgery, namely laparoscopic or robot-assisted, during COVID-19 has been discouraged due to safety issues regarding the transmission of

From the Marmara University, Istanbul, Turkey; the Ondokuz Mayıs University, Samsun, Turkey; the Ankara University, Ankara, Turkey; the Dokuz Eylul University, Izmir, Turkey; the Cukurova University, Adana, Turkey; and the Acibadem University, Istanbul, Turkey

Address correspondence: to Ilker Tinay, Department of Urology, Marmara University School of Medicine, Istanbul, Turkey. E-mail: itnay@marmara.edu.tr

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Table 1. Demographic data

	2019 (N = 200)	2020 (N = 90)	P value
AGE (MEAN ± SD)	64.9 (±11)	65.4(±12)	.730*
SEX (FEMALE / MALE)	39/161	10/80	
CCI SCORE (MEDIAN – RANGE)	6 (4-8)	8 (5-10)	<.0001**
ASA SCORE			.005†
I	31% (N = 62)	14.4% (N = 13)	
II	53% (N = 106)	58.9% (N = 53)	
III	16% (N = 32)	26.7% (N = 24)	

SD, standard deviation; CCI, Charlson Comorbidity Index; ASA, American Society of Anesthesiologists.)

* T-test.

** Mann-Whitney-U.

† Chi-square.

Table 2. Distribution of nondeferrable uro-oncological procedures for most common urological cancers during study periods 2019 vs 2020

	2019 N = 121	2020 N = 57	P value*
Urothelial Carcinoma			
TUR (PRIMARY AND SECOND)	88.4% (N = 107)	80.7% (N = 46)	.348
RADICAL CYSTECTOMY	8.3% (N = 10)	12.3% (N = 7)	
NEPHROURETERECTOMY	3.3% (N = 4)	7.0% (N = 4)	
KIDNEY CANCER	N = 48	N = 18	.184
PARTIAL NEPHRECTOMY	45.8% (N = 22)	27.8% (N = 5)	
RADICAL NEPHRECTOMY	54.2% (N = 26)	72.2% (N = 13)	
PROSTATE CANCER	N = 31	N = 15	
RP (LOW & FI RISK)	70.9% (N = 22)	26.7% (N = 4)	.004
RP (UI & HIGH RISK)	29.1% (N = 9)	73.3% (N = 11)	

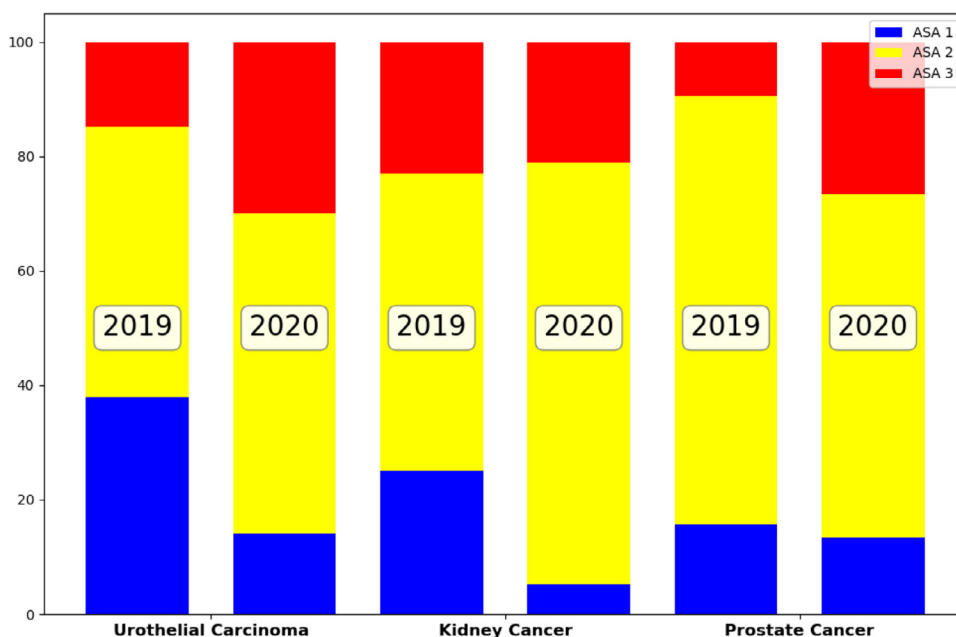
RP, radical prostatectomy; FI, favorable intermediate; UI, unfavorable intermediate.

* Chi-square.

virus.⁵ In line with these recommendations, there is a significant decrease in minimally invasive surgery between 2019 and 2020 (55.9% vs 28.9%, $P = .003$ – Chi-square), where laparoscopic or robot-assisted radical nephrectomy decreased from 61.5% to 23.1%, partial nephrectomy

from 54.5% to 20% and radical prostatectomy from 58.1% to 26.7%, respectively.

American Society of Anesthesiologists (ASA) scores according to the cancers are shown in Figure 1. There was an increase of patients with highest ASA scores and the

**Figure 1.** American Society of Anesthesiologists scores according to the most common urological cancers 2019 vs 2020, respectively. (Color version available online.)

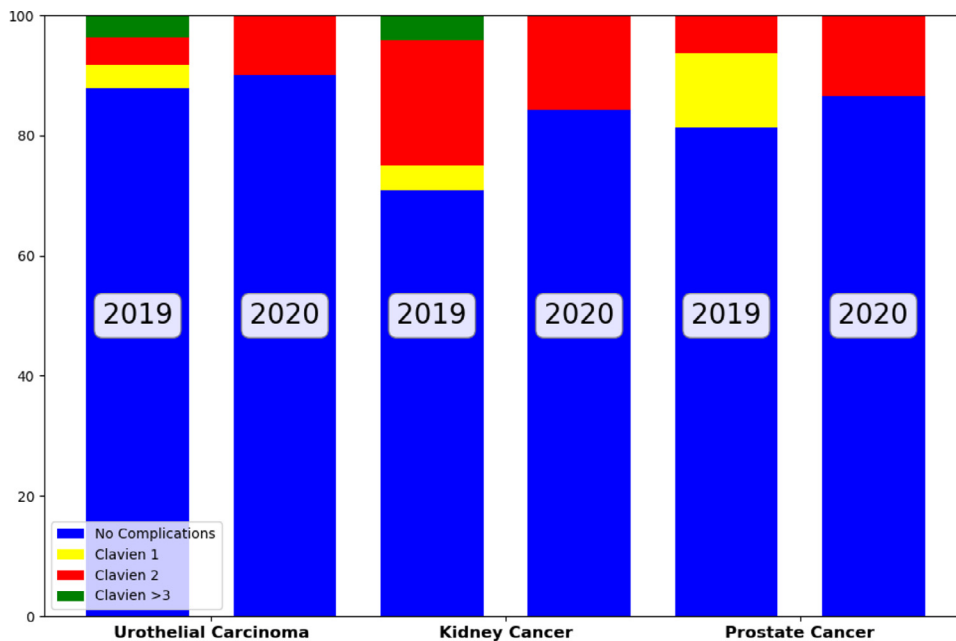


Figure 2. Postoperative complications according to the Clavien-Dindo Classification. (Color version available online.)

median Charlson Comorbidity Index scores are also increased from 2019 to 2020 (Table 1). Two third of the “nondeferrable” patients with the highest ASA scores in 2020 are referred from local hospitals. Since most of the local hospitals in Turkey are occupied with COVID-19 patients and had to cancel all surgeries during the study period, we believe these measures appear to be the reason for increased number of patients with higher comorbidities in our patient cohort of 2020. One limitation of our report is that we do not have the data on how many of patients were referred from local hospitals in 2019, so we cannot make a conclusion on these data. However, the increased rate of patients with higher comorbidities has not been translated to an increased rate of postoperative complication (Fig. 2). We believe that decreased number of cases per day during COVID-19 cleared off the pressure to manage several cases within a limited time period and this might be one of the reasons for decreased early (14 days after the surgery) postoperative complications according to the Clavien-Dindo classification in our patient cohort.

Our real-life data of the early period during COVID-19 pandemic shows a significant impact on surgical urologic oncology practice compared to the same period in 2019.

These data represent the major reference institutions in different geographical areas in Turkey, where non-deferrable cases were redirected by the local hospitals during the study period. Our data underlines the fact that, during catastrophic situations such as the current pandemic, oncological surgeries should be centralized in tertiary centers in order to continue to treat patients with comorbidities and to achieve optimal outcomes in terms of complications.

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