Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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European Association of Urology

Letter to the Editor

Urolithiasis Practice Patterns Following the COVID-19 Pandemic: Overview from the EULIS Collaborative Research Working Group

COVID-19 was first reported as a novel pulmonary infection in December 2019 [1]. Apart from being a potentially lethal condition, COVID-19 is also affecting health care strategies for other medical conditions. Ficarra et al [2] have made suggestions regarding urological surgeries during the COVID-19 pandemic. However, the authors focused on all urological pathologies and reported information from Italy, a country that seemed to be the epicenter of the pandemic in Europe [2]. Therefore, we sought to obtain an up-to-date perspective on how the routine practice patterns of expert European endourologists changed (or adapted) during the COVID-19 pandemic via a survey. By focusing on expert experience coming from the field, we aimed to provide an algorithm to guide the management of urinary stone disease during this unprecedented time of extraordinary stress on the global endourology community.

An online survey composed of 31 questions (Supplementary material) using the web-based Survey-Monkey system (Palo Alto, CA) was circulated primarily to authors who were in the EULIS working groups, whose main areas of expertise was urinary stone disease, and who had contributed to the literature to date. Among 98 experts approached, 60 physicians (61.2%) responded.

The distribution of the countries involved is given in Table 1. At the time of survey completion, the first COVID-19 pandemic case was reported >21 d previously in the country of 67.2% of the respondents and between 7 and 21 d previously in the country of 32.8% of the respondents (Table 1). While all responding experts experienced a change of at least 25% in routine clinical practice, 49% reported a change of >90% in (Fig. 1A). Among the experts, 72.3% used telemedicine during the pandemic (Fig. 1B).

The majority of the experts (89.4%) tended to change their treatment strategy for an emergency patient with COVID-19 by planning an elective intervention following drainage of the collecting system; however, 10.6% continued to perform stone removal procedures in these cases. Some 43% of respondents continued to use a surgical mask as before the pandemic, whereas 17% did not perform surgery. Regarding eye protection, 25.5% started using goggles, 21.3% were already using goggles, and 34% did not shift to the use of goggles as part of their pandemic response.

Among the respondents, 55.3% and 39.8% changed their elective surgical treatment approach after COVID-19 by a rate of 90–100% and 75–89%, respectively. Only 6.4% continued as before the pandemic. From an anesthesiology point of view, routine thorax computed tomography (CT) was requested 24 h before surgery by 27.7% of the experts, whereas, 61.7% requested thorax CT in the case of COVID-19 suspicion. Some 34% of the respondents preferred spinal anesthesia instead of general anesthesia, whereas 17% continued with spinal anesthesia as used before the pandemic (Fig. 1C), possibly because of the well-known safety of spinal anesthesia in stone surgery [3]. Unless contraindicated, we think that endourologists may prefer regional anesthesia during the COVID-19 pandemic, depending on their hospital conditions.

Nearly half of the respondents (48.9%) stated that COVID-19 patients have been hospitalized in their departments, with approximately 40% taking an active role in evaluating respiratory symptoms in these patients (Fig. 1D). Therefore, it is obvious that although not specializing in the management of contagious diseases, all health care staff including doctors specializing in other disciplines have been obliged to deal with the pandemic. More than 85% of the participants reported a decrease of >50% in the workload of outpatient clinics. Routine treatment protocols for stone management were reported as altered by 91.3% of the experts. Changes in routine treatment protocols were further investigated in the questionnaire for certain clinical situations. For management of stones of <2 cm and 2–3 cm in size, 31.9% and 27.6% of the participants, respectively, stated that they would prefer a conservative approach until the pandemic settles. In addition, approximately two-thirds stated that they would postpone any auxiliary procedure because of the COVID-19 pandemic and 51% stated that they would discharge patients on the same day or within 24 h postoperatively.

Another important aspect is emergency department admission of stone patients. Emergency physicians encounter stone patients with more severe conditions such as colic pain, acute renal failure, and pyelonephritis. The survey outlined that emergency department management of stone patients was also altered in more than 90% of cases during

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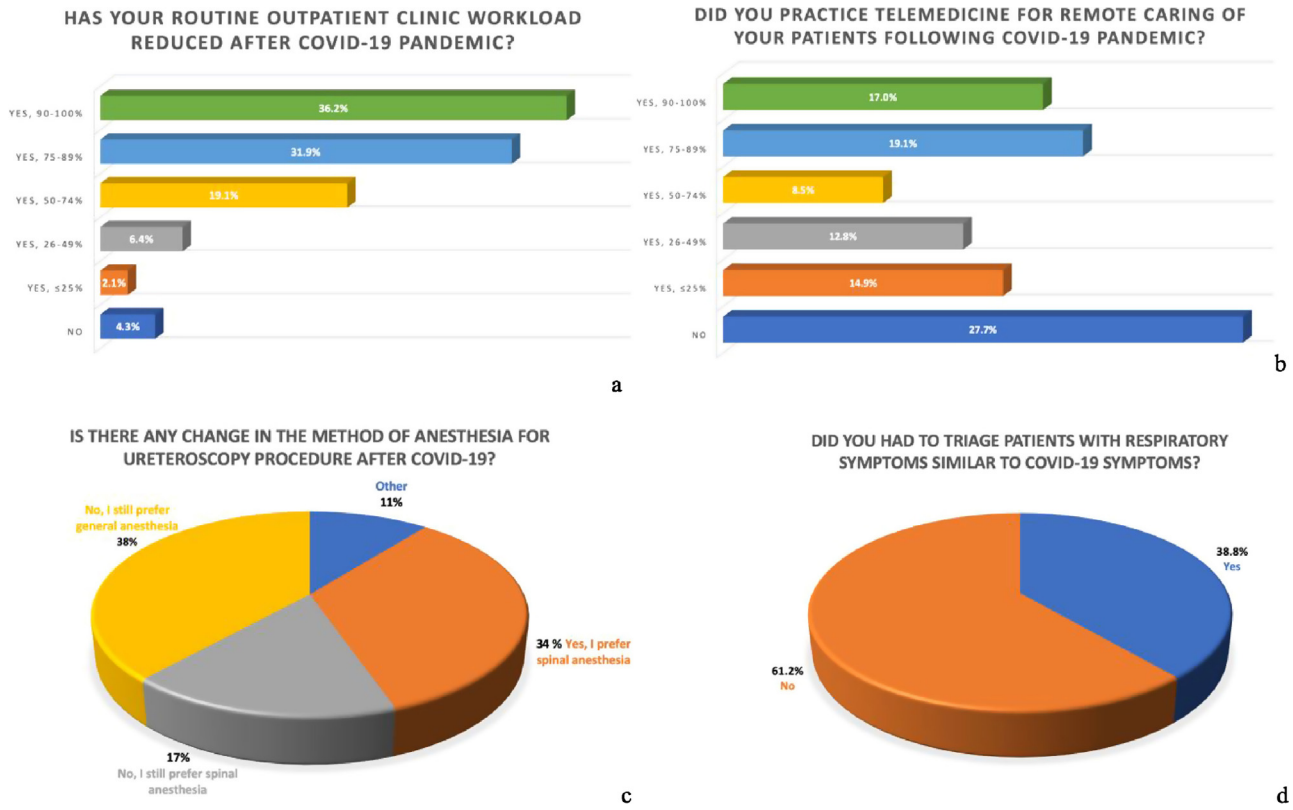

Fig. 1 – Practice patterns among expert endourologists during the COVID-19 pandemic.

Table 1 – Data for the 60 participants from 20 different countries interested in urolithiasis who were included in the study survey.[a]

Country	Region(s)	Total cases	Time between officially reported first case and response to the survey (d)	Total deaths due to COVID-19	Time between officially reported first 10 deaths and response to the survey (d)
Azerbaijan	Baku	298	31	5	Not applicable
Austria	Vienna, Salzburg	10 182	35	128	9
Belgium	Gent	12 775	56	705	15
Bulgaria	Sofia	399	24	8	Not applicable
Czechia	South Bohemia	3308	30	31	3
Denmark	Fredericia, Copenhagen	2860	34	90	10
France	Paris	51 477	69	3523	24
Georgia	Tbilisi	115	34	0	Not applicable
Germany	Baden-Württemberg, Bavaria, Niedersachsen	67 366	66	775	16
Greece	Patras, Northeastern Greece	1314	34	49	11
Italy	Bergamo, Lombardy, Rome, Milan, Naples	105 792	63	12428	35
North Macedonia	Skopje	329	34	9	Not applicable
Poland	Malopolska	2311	28	33	7
Romania	Bucharest	2245	33	69	7
Russia	Saint Petersburg	2337	60	17	0
Serbia	Belgrade	900	25	13	2
Spain	Barcelona, Valladolid, Catalonia, Comunidad Valenciana, Madrid, Alicante, Granada	94 417	62	8464	24
Sweden	Stockholm	4435	61	180	13
Turkey	Ankara, Istanbul, Konya	13 531	20	214	10
UK	London, Manchester, Cambridgeshire	25 150	62	1789	20

[a] Data in the table were collected from the websites www.who.int/emergencies/diseases/novel-coronavirus-2019, www.worldometers.info/coronavirus, and https://ourworldindata.org/coronavirus using information updated on March 31, 2020.

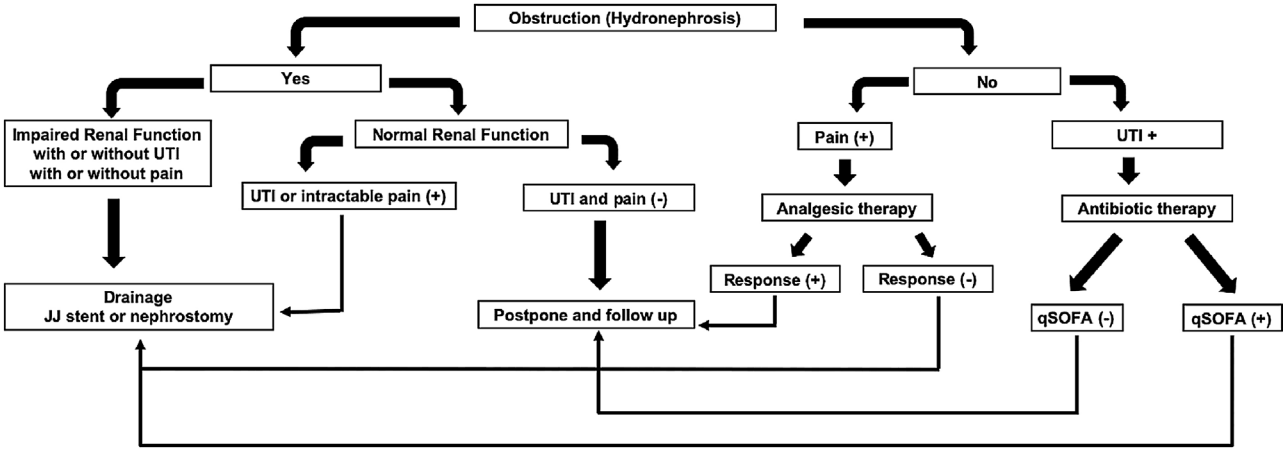

Fig. 2 – Treatment algorithm for urinary stone patients during the COVID-19 pandemic. UTI = urinary tract infection; qSOFA = quick sepsis-related organ failure assessment.

this period. Although the approach to stone patients in the emergency department was the same as before according to 6.4% of the experts, 55.3% began to accept cases from another COVID-19 area at the same emergency department, 25.5% accepted emergent urolithiasis cases in a newly organized space in the hospital, and 10.6% did not accept COVID-19 cases at all. Some 2% of the respondents referred emergent urolithiasis cases to other specialized COVID-19 centers. While timely management of these cases in the emergency department is crucial, clinical controversies arise if these patients are also suspicious for COVID-19. A possible scenario of a patient presenting to the emergency department with severe colic pain, fever, and cough would be a real dilemma for physicians. In the survey, nearly 90% of the participants stated that they would change the treatment strategy for an emergency case when the patient is positive for COVID-19. Therefore, clinical algorithms for cases presenting with renal obstruction, urinary tract infection, and acute renal failure would be helpful (Fig. 2). Changes in sterilization strategies during the COVID-19 pandemic were also included in the questionnaire: only 34.8% of the respondents did change their routine strategy for sterilization. This may be because of either a lack of knowledge on the risk of urine-based dissemination of viral RNA or a lack of modification of sterilization strategies in hospitals in the short time immediately after the first case report on COVID-19.

In many European countries, the pandemic started more than 3 wk ago and has gained momentum, and our survey was carried out during this critical period. When faced with such an unexpected situation, urologists, like other physicians, tend to use all of the resources available in their web-based environment, such as European Association of Urology COVID-19 resources for urologists, the American Urological Association coronavirus disease 2019 information center, and social media. The COVID-19 pandemic has led to significant changes in the practice patterns of endourologists for the management of urinary stone disease. Given the risk of novel viral pandemics in the future, the endourology community should be aware of possible alterations in clinical practice. Clinical algorithms may serve as a useful guide in adapting to these changes in time and in managing patients with urinary calculi safely and successfully.

Conflicts of interest: The authors have nothing to disclose.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.eururo.2020.04.057.

References

[1] Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA 2020;323:1061–9.

[2] Ficarra V, Novara G, Abrate A, et al. Urology practice during COVID-19 pandemic. Minerva Urol Nefrol 2020. http://dx.doi.org/10.23736/S0393-2249.20.03846-1, [Epub ahead of print] PubMed PMID: 32202401. Mar 23.

[3] Zeng G, Zhao Z, Yang F, Zhong W, Wu W, Chen W. Retrograde intrarenal surgery with combined spinal-epidural vs general anesthesia: a prospective randomized controlled trial. J Endourol 2015;29:401–5.

Tzevat Tefik[a]
Selcuk Guven[b,*]
Luca Villa[c]
Mehmet Ilker Gokce[d]
Panagiotis Kallidonis[e]
Kremena Petkova[f]
Murat Can Kiremit[g]
Mehmet Giray Sonmez[h]
Elisa de Lorenzis[i]
Bilal Eryildirim[j]
Kemal Sarica[k]

[a]*Department of Urology, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey*
[b]*Department of Urology, School of Medicine, Istanbul Medipol University, Istanbul, Turkey*
[c]*Division of Experimental Oncology/Unit of Urology, Urological Research Institute, IRCCS Ospedale San Raffaele, Milan, Italy*
[d]*Department of Urology, School of Medicine, Ankara University, Ankara, Turkey*
[e]*Department of Urology, University Hospital of Patras, Patras, Greece*
[f]*Department of Urology and Nephrology, Military Medical Academy, Sofia, Bulgaria*
[g]*Department of Urology, School of Medicine, Koç University, Istanbul, Turkey*
[h]*Department of Urology, NEÜ Meram Medicine Faculty, Konya, Turkey*
[i]*Department of Urology, Ospedale Maggiore Policlinico, Milan, Italy*
[j]*Department of Urology, Health Sciences University, Dr. Lütfi Kirdar Training and Research Hospital, Istanbul, Turkey*
[k]*Department of Urology, Medical School, Biruni University, Medicana Bahcelievler Hospital, Istanbul, Turkey*

*Corresponding author. Department of Urology, School of Medicine, Istanbul Medipol University, Istanbul, Turkey.
E-mail addresses: selcukguven@hotmail.com (S. Guven).
sguven@medipol.edu.tr (S. Guven).

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