

THE JOURNEY OF UROLOGY TRAINING IN THE COVID-19 ERA

ÜROLOJİ EĞİTİMİNİN COVID-19 DÖNEMİNDEKİ DURUMU

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ABSTRACT

We wanted to review of the problems faced by urology residents during the COVID-19 pandemic and to present and emphasize recommendations for these problems.

The databases search was performed with the keywords 'COVID-19', 'SARS-Cov-2', 'Urology', 'Residency', and 'Training' on PubMed by three experienced urologists. Screening, eligibility, and inclusion criteria were identified for use within the PRISMA protocol. Forty-two reports (70 %) which met the inclusion criteria were included in this review. The types of these reports were: 8 editorial papers, 5 letters, 4 reviews, and 2 comments. 23 of the 42 reports are original articles. Almost all original articles were survey studies and focused on COVID-19's impact on the mental health and educational programs of urology residents.

Urology residents should be ready and start using more of the virtual educational methods, and urology residency program directors should give more importance to new teaching modes instead of traditional methods because of the unknown start time, and unknown conditions, of the post-pandemic period.

Keywords: COVID-19, Urology, Residency, Training

ÖZET

Üroloji asistanlarının COVID-19 pandemisi sürecinde karşılaştıkları sorunların bir değerlendirmesini yapmak ve bu sorunlara yönelik önerileri sunmak ve vurgulamak için bu çalışmayı planladık.

Üç deneyimli ürolog tarafından 'COVID-19', 'SARS-Cov-2', 'Üroloji', 'İhtisas' ve 'Eğitim' anahtar kelimeleri ile PubMed veritabanı araması yapıldı. PRISMA protokolü kullanılarak tarama, uygunluk ve dahil edilme kriterleri belirlendi. Dahil edilme kriterlerini karşılayan 42 çalışma (%70) bu incelemeye alındı. Bu çalışmaların türleri şunlardı: 23 orijinal makale, 8 editöryal makale, 5 editöre mektup, 4 inceleme ve 2 yorum. Orijinal makalelerin neredeyse tamamı anket çalışmasıydı ve COVID-19'un ruh sağlığı üzerindeki etkisine ve üroloji asistanlarının eğitim programlarına odaklandığı görüldü.

Pandemi sonrası dönemin bilinmeyen başlangıç zamanı ve bilinmeyen koşulları nedeniyle üroloji asistanları hazırlıklı olmalı ve sanal eğitim yöntemlerini daha fazla kullanmaya başlamalıdır ve üroloji uzmanlık programı yöneticileri, geleneksel yöntemler yerine yeni öğretim yöntemlerine daha fazla önem vermelidir.

Anahtar kelimeler: COVID-19, üroloji, ihtisas, eğitim

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) pandemic has affected all areas of life. The health care system had come to a standstill with the high level of hospital admissions in many countries. The unknown aspects of the disease, such as the symptoms, treatments, and potential complications caused a global crisis.

To deal with the many outpatient visits and intensive care patients, guidelines were prepared by medical associations which suggested the classification of all non COVID-19 cases as urgent/non-urgent or deferrable/non-deferrable. As a result, delaying all non-urgent operations and procedures, until the crisis has been brought under-control, aims to minimize the spread of the virus and free up healthcare professionals and hospital beds (1). To protect the patients and medical teams from the risk of infection, telemedicine was suggested and is used more often than before the pandemic period (2). Initially, all meetings were canceled, and later these were rearranged as virtual conferences.

One of the problems impacting medical life has been the suspension of medical education during the pandemic. Medical faculties, like all other university departments, were

shut-down (3), and students in the last year of their medical studies were called to COVID-19 centers (4). With the break in the educational process, medical students were unable to take adequate medical training (5), and residents in the surgical departments performed less practice in their fields (6). Almost all resident and senior doctors were redeployed into COVID services and intensive care units, regardless of their main departments (7, 8).

In this study, we wanted to review the problems experienced by urology residents during the COVID-19 pandemic and to show and emphasize the solutions to these problems presented in the literature.

METHODS

The PRISMA protocol was used to review the reports (Figure 1). PubMed (Medline), Embase, PsycINFO, Education Resources Information Center (ERIC), and Web of Science were searched using the combination of all the following keywords: 'COVID-19', 'SARS-Cov-2', 'Urology', 'Residency' and 'Trainee' to find all papers that had been recorded up until December 2021. The titles and abstracts were independently reviewed by three authors of this paper to identify the potentially related articles. The reports about

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Received date: 19.04.2023 **Accepted date:** 01.06.2023

Cite as: Aydın ME, Kalkanlı A, Kaya C, Sungur M, Aykaç A. The Journey of Urology Training in the COVID-19 Era. Eskisehir Med J. 2023; 4(2): 80-84. doi: 10.48176/esmj.2023.110.

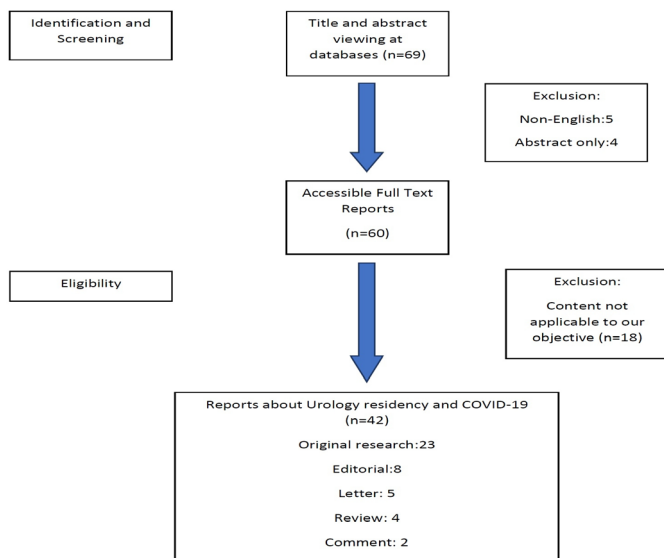


Figure 1. PRISMA Protocol for Systematic Review.

the problems of urology residents and the recommendations to these problems written during COVID-19 period so far were included in this study. Reports which were Non-English, had no abstract, and/or had content meeting our objectives were excluded from the study.

RESULTS

Out of the 60 papers on the databases, 42 reports (70 %) which met the inclusion criteria were included in this review. The types of these reports are: 8 editorial papers, 5 letters, 4 reviews, and 2 comments. 23 of the 42 reports are original articles. Almost all original articles were survey studies which mainly focused on COVID-19's impact on the educational programs of urology residents. The other focus of the papers aimed to share recommendations to both urology residency program directors and the urology residents, such as the use of virtual educational programs to mitigate the disruption of these training programs. Another significant problem detected was that the majority of the residents suffered from anxiety. The causes of the anxiety were the lack of education of Urology, being positive for COVID-19, and the possibility of the transporting the virus to their families (Table 1).

DISCUSSION

COVID-19 has significantly affected on urological care and urologic health professionals, as with other types of health workers. The results of a survey from Latin America Countries were that 57.7 % of urologists had decided to postpone surgery, 60.9% performed only urgent urological procedures, 76.2 % continued to provide only oncological treatment (9) and 15% of the participants' clinics stopped all urological activities and became COVID-19 services (10). A survey, with 1004 participants from Asia, Europe, South, and North America, showed a 37% decrease in outpatient

clinic appointments compared to the period before the pandemic (11). Telemedicine use in Urology instead of outpatient appointments has become more favorable during the pandemic to avoid unnecessary hospital admissions and the resultant risk of spreading the virus. Dubin et al. found that the telemedicine usage increased from 43.7% to 80.8% during COVID-19 among urologists and that urologists had pointed out that they would continue to use telemedicine after the pandemic (2). Although 82 % of the urology residents had not taken any education to make efficient tele-visits, the positive impact of telemedicine on residents was that residents could still engage with patient care while maintaining social distancing, and 50 % of the residents said they would continue to use tele-visits during their senior life (12).

Urology residents have been seriously affected by the pandemic and health system crisis (13). Many urological procedures or operations had been cancelled, and emergency or cancer operations have only been performed by the most experienced surgeons, instead of chief residents, to minimize the use of PPE (personal protective equipment), operation time, and the risks of complications and infections (14). Urological surgical volume decreased between 83 % and 100 % in the US (15). As a result, urology residency training has been greatly affected by the loss of surgery. Similar to the thoughts of urology residents in Brazil, it has been determined that 79 % of urology residents in the United States fear that their urology education in surgical training may be insufficient during their period as a senior urologist (10, 15). Although 85 % of the urology applicants in the US said that there was no effect of the pandemic conditions on the choice of urology (16); 51 % experienced anxiety about receiving insufficient education and only 9% residents said that they would continue in wanting to be urologist if the pandemic goes on and continues to cause these problems for residency programs (15). The negative effect was higher for chief urology residents than junior residents due to the loss of surgical volumes in Italian and Brazilian surveys (17, 18). Many trainees will have decreased exposure to subspecialties, including pediatrics and reconstructive urology (15), and 60% of urology residency program directors surveyed thought that the residents would not perform enough urological procedures to become a senior urologist, due to the pandemic (19). Most of the urology trainees stated that program changes had negatively impacted surgical training, and many agreed with a statement endorsing increased anxiety about their competency upon residency completion (15).

The surveys from the USA and European countries showed that almost all residents were redeployed to COVID-19 services and more than 80% of these tasks were mandatory (8, 12, 15, 17). The dramatic redeployment as a medical intern has been reported by a

chief urology resident (7). Almost half of the residents had not been supplied with PPE and had an increased level of anxiety due to the risk of being infected with COVID-19 (10). The fear of becoming ill and being a potential risk to their families were the causes of their anxiety (14, 20).

Pandemic-related stress and the lack of urology education are the major factors for the high level of anxiety. It has been shown that easy access to PPE, extra efforts provided by clinic directors for the residents on the urological program, and the feeling of not being alone with the COVID-19 patients, are major factors contributing to the well-being of urology residents (20). To reduce stress, some hospitals started providing free meals to residents, conducted virtual meetings, and employed wellness counselors and therapists for the residents (21), while the residents in New York received extra salaries between April and May 2020 (22).

Up to the time of the preparation of this report, there has been limited recommendations about urology residency programs. Kwon et al. tried to show how urology residents could take care of COVID-19 patients and adapt their education in this pandemic area. They advised urology residents participating in free online courses offered by the AUA, (the American College of Surgeons), and National Institute of Health (NIH) to enhance their knowledge of research design and analysis (23). Gabara et al. shared how they adapted their urological education during the pandemic at a clinic in Canada. Online resources used for education purposes have included programs such as Zoom, Microsoft Teams, Poll Everywhere, and the UCSF COVID Lectures Series, and are being incorporated into some Canadian teaching programs allowing opportunities for continued professional development certification as well (24). Vargo et al. shared the work schedule of urology residents in Cleveland Clinics during the pandemic period as a scientific report to give an idea to other urology centers. This included a daily check-in at 4 PM, where they discussed the assigned topic for that day, conducted on a virtual platform such as Skype or Zoom. Every Wednesday morning, an academic conference, with various interesting cases, assigned Campbell's chapters, and specific topics chosen by the faculty were all presented during the 3-hour block (25). Dedeilia et al. reviewed a report which identified innovations, such as teleconferences and webinars, online atlases, 3D models, simulation, and virtual reality, in medical and surgical education programs (5). Westerman et al. and Porpiglia et al. also summarized video-based urologic educational websites (26, 27). Smigelski et al. gave information about the video series named EMPIRE (Educational Multi-institutional Program for Instructing Residents) and suggested these new education tools could have a beneficial effect on urology residents (28). Almost all urology residency programs have already started to use new educational methods in

the US (12, 15) however the majority of Italian education clinics had not started to use virtual meetings (29). Campi et al. showed that almost 80 % of the urology residents who took part in the survey had used pre-recorded videos of surgical procedures, interactive webinars on clinical cases, and videos on guidelines (30). In another survey, it was found that 85.2% of residents had spent at least two hours per day for smart learning (31).

Based on the results of these reports, it could be said that urology residents are already familiar with these new training methods and these virtual education tools have some advantages. These methods are cheap, easy to access, and can be accessed everywhere on the internet. The residents can also receive messages from other urology department's expert educators.

It is difficult to say when the post-COVID-19 period will start, and this uncertainty increases the stress levels of residents. The managers of national and international urology education should review training programs and make new policies to adapt residents to the post-pandemic scenario. For improving endoscopic surgical skills, dry and wet laboratories should be set up. Virtual education programs should be designed, and the directors should encourage residents to use these programs effectively (32), even though there is still ambiguity concerning how adequate these are for clinical practice and bedside training (33).

CONCLUSION AND SUGGESTIONS

It is well-known that COVID-19 has introduced many challenges that affect the lives of medical residents. The review of the literature shows that the major reduction in urological care and surgeries has been the main reason for this disturbance. All traditional education programs should be revised, and computer and internet-based programs (tele-technology), and surgical skill laboratories should be used more in the residents' educational programs to provide high-quality resident training. However, despite all the negativities, urology residents should know that education is not only gained during the training program. It should not be forgotten that learning urology is a long journey, so understanding the importance of lifelong learning has become a key point more so than ever during this digital period.

Authorship Contributions:

Idea/Concept: CK, AA, Design: MEA, MS, Supervision: CK, AK, Data Collection or Processing: CK, AA, Analysis or Interpretation: MEA, MS, Literature Search: MEA, AA, Writing: CK, AK, Critical Review: AA, MS, References and Fundings: -, Materials: MEA, AK.

Conflict of Interest: No conflict of interest was declared by the authors.

Table 1. Problems and Recommendations.

Problems
<ul style="list-style-type: none"> • Mandatory redeployment to COVID-19 services • Lack down of urological practice • Loss of surgical volume • Disturbance of urological educational programs • Inability to achieve physician-patient communication • Anxiety of being ill and transporting the viruses to their families
Recommendations
<ul style="list-style-type: none"> • For program directors <ul style="list-style-type: none"> ○ Adapt new teaching methods such as tele-conferences, webinars, online atlases, 3D models, simulation, and virtual reality, into your educational programs ○ Set up surgical skill (wet and dry) laboratories if your clinics do not already have them and encourage residents to spend time in these laboratories. ○ Make the residents feel that they are not alone during the pandemic ○ Organize meetings in clinics to continue the communication between residents and the other doctors ○ Carry out online guideline-based exams to measure the residents' knowledge and emphasize their insufficiencies in different urological areas • For residents <ul style="list-style-type: none"> ○ Increase your knowledge concerning the diagnosis, follow-up, and the different treatments of COVID-19 and diseases associated with this virus ○ Always use PPE during all procedures and patient interviews ○ Learn about and join web based urological lectures and webinars which were summarized at the literature. ○ Learn how to deal with anxiety, and, if necessary, seek professional support

Financial Disclosure: The authors declare that they have no relevant financial.

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