BKM Public Health & Community Medicine
(Berita Kedokteran Masyarakat)

Volume 38 **Number** 1, 2022
Pages 9-14
DOI: 10.22146/bkm.v38i01.4070

Applying the Indonesian Urological Association's recommendations for urology surgery during the COVID-19 pandemics in Dr Sardjito Public Referral Hospital Yogyakarta

Muhammad Anwar Irzan[1], Ahmad Zulfan Hendri[1], Indrawarman Soerohardjo[1]*

Abstract

Purpose: Indonesia is a country with many COVID-19 cases distributed in all provinces. There were over 1,860,000 positive cases with 51,612 mortalities as of June 8th, 2021, and 289 deaths were from doctors. The Indonesian Urological Association (*Ikatan Ahli Urologi Indonesia*, IAUI) has initiatives to protect the members' safety in daily urology practices by issuing recommendations, including urology surgery. The Dr. Sardjito Teaching Hospital as a COVID-19 referral provides urologic surgery services. **Method:** This study aims to find the pandemic effect in urology surgeries at the COVID-19 Referral Hospital, applying IAUI recommendations. The number of surgeries was compared from 1 year before and after the 2020 IAUI recommendation between April 2019 and April 2021. **Results:** All categories decreased statistically significantly except fertility. Nine hundred sixty-nine urology surgeries were performed one year before, and 571 surgeries were conducted one year since the recommendation was released. **Conclusion:** All categories in urology surgery were significantly reduced during a pandemic. Several procedures supposed to delay were still performed under patients' and urologist' safety considerations. Urology surgery unit follows the Indonesian Urological Association Recommendations during the COVID-19 pandemic.

Keywords: COVID-19; urology guideline; urology procedure; urology recommendation; urology surgery

Submitted:
December 22th, 2021
Accepted:
January 23th, 2022
Published:
January 27th, 2022

[1]Division of Urology, Department of Surgery, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada/Dr. Sardjito Hospital, Jl. Kesehatan No. 1, Yogyakarta, 55281 Indonesia

*Correspondence:
Indrawarman Soerohardjo
indrawarman@ugm.ac.id

INTRODUCTION

The COVID-19 pandemic has caused a global calamity. Based on the recent World Health Organization (WHO) data released on June 8th, 2021, over 174 million confirmed cases were recorded, with 3.75 million mortality cases (2.2% death rate) worldwide (1). Indonesia is one of the countries with many COVID-19 cases distributed across its provinces (2). On 6th March 2020, there was an official announcement about the covid 1st case in Indonesia (3). There were 1.86 million positive cases from this first case, with more than 51,600 deaths until June 8th, 2021 (2).

COVID-19 pandemic has been major stressful even for healthcare workers (4). Even with proper personal protective equipment and universal precaution, health workers, especially in Indonesia, were not fully protected (5). Furthermore, based on the Indonesian Doctor Association data of January 28th, 2021, it was estimated that around 647 healthcare workers have died due to SARS-CoV-2 infections, including 289 doctors. Even with medical doctor safety guidelines released by Ikatan Dokter

Indonesia (IDI), These devastating facts still need an urgent mitigation policy.6 COVID-19 pandemic also caused a sudden change in the health system administration. Especially for surgical management, this caused a considerable burden for achieving timely surgery, proper scheduling, and post-operative follow-up for elective and emergency cases (7,8). For the urology field, the European Association of Urology Guideline, the Urological Society of Australia and New Zealand, and the American Urological Association have developed guidelines to anticipate this crisis to minimize impacts and risks while delivering urological care (9,10). Based on those guidelines and additional literature, the Indonesian Urological Association (IAUI) created urological care guidelines in a pandemic setting (11). But among those guidelines, most of these recommendations were also based on expert opinion (12). Thus, the importance of investigating the IAUI recommendation has been more remarkable as this recommendation had been developed to protect the members' safety in daily urology practices.

This study aimed to evaluate the impact on urology surgery after the issuance of recommendations. From this evaluation, researchers hope this paper will be a valuable resource for developing a better recommendation for urological care.

METHODS

We included all urology surgeries performed one year before and one year after the recommendations were published (April 2020). All of the surgery performed at Dr. Sardjito General Hospital Yogyakarta (April 2019–April 2021). We divided the procedure based on categories of urology surgery; then, we compared the adherence of urology surgery procedures based on the recommendation. The recommendation stated that several types of surgery must be delayed, such as pediatric, kidney transplantation, BPH, and fertility procedures. We divided the surgery into nine categories: oncology, pediatric, urinary diversion, emergency (including trauma and infection), stone surgery, Benign Prostate Hyperplasia (BPH), Reconstruction, Kidney Transplantation, and Fertility.

The primary outcome measure of this study is the proportion among surgery categories. Secondary outcomes lend supporting evidence for the primary endpoint. Then, we used Chi-Square analysis to compare whether there is any statistical difference in sample proportion.

The local ethical committee has approved this research with a reference number of KE/FK/0421/EC/2021. All procedures performed in this study followed the institution's ethical standards.

RESULTS

Nine hundred sixty-nine surgeries were performed before the pandemic; urinary diversion became the most common urology surgery (257 procedures). Double J Stent insertion and Nephrostomy tube related to a patient with uropathy obstructive in gynecology, obstructive stone, and ureter abnormality. The number of surgery was declined after the pandemic (571 procedures). Before and after the pandemic, the number of oncology surgery was 211 (21.8%) and 125 (21.8%).

At the same time, the proportion for oncology surgery was still the same. There was a 41% decrease in oncology surgery after the pandemic. While The number for urinary diversion before and after the pandemic was 257 (26.5%) and 213 (37.3%). There was only a 17% decrease in a urinary diversion after the pandemic compared to before the pandemic. For stone with operative management, 133 (13.7%) and 81 (14.1%) cases before and after the pandemic, respectively. There was a 39% decrease in stone operations after the pandemic. Pediatric surgery was done in about 136 (14.0%) cases and 70 (12.2%) cases before and after the pandemic. Around 48% decreased operation was observed in pediatric surgery after the operation. There was a decline in operation numbers for an emergency by 41 %. An emergency operation was done in around 79 (8.2%) cases and 47 (8.2%) cases before and after the pandemic. BPH operation number was declining by 70%. Only 20 (2.0%) cases and 6 (1.1%) cases were done before and after the pandemic. For reconstruction surgery, around 58 (5.9%) cases and 18 (3.1%) cases were done before and after the pandemic. The operation was declining by 85% compared to reconstruction before the pandemic. 59 and 18 transplantation cases were then done before and after the pandemic, and a 69% decrease in operation was observed. Fertility

surgery was done around 10 (1.1%) and 1 case (0.01%) before and after the pandemic. A tremendous decline in operations was observed in infertility surgery (90%). Procedure proportions after the pandemic observed a significant decrease in all categories of surgery (p-value < 0,05), except fertility surgery (Table 1).

All of the surgery categories were significantly reduced in adherence to the recommendations. Selected cases of Tumor, Obstructive Stone/with infection, and emergency (urological trauma and scrotal exploration in testicular torsion) include the category of surgery that should not be delayed (Graph 1).

DISCUSSION

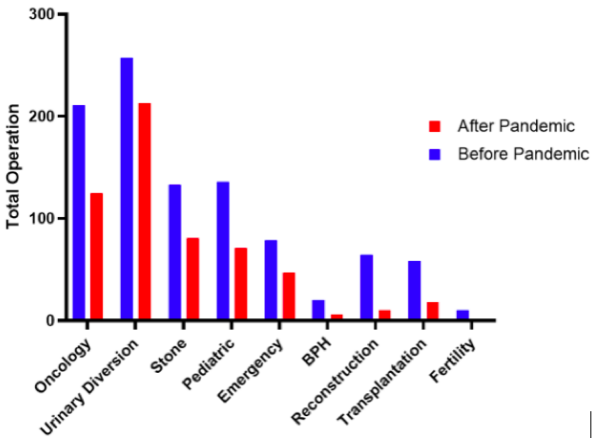
The urology procedures performed at the Dr. Sardjito General Hospital, both a teaching hospital and COVID-19 referral hospital, were conducted based on the Indonesian Urological Association guideline recommendations. Several considerations that influenced whether surgery will be performed or not during the pandemic were based on the aspects of the Urologist, the patient, and other conditions. Shifting the working hour of the urologist may become the cause of decreased urology surgery and patient perspective to avoid visiting the hospital.

The surgery was considered part of preventing and managing the COVID-19 transmission.[13] As in the case of urological oncology for therapy, it complies with international and national guidelines on the management of oncology cases (indication of non-palliative instances). It is expected that the surgery can improve patients' quality of life. The benefits obtained by patients outweigh the risk of COVID-19 infection, with the application of well-planned hospital infection control measures taken into consideration.

Several surgical procedures were considered part of those that should be delayed based on the recommendations. Every category of urology surgery was declined, showing the adherence to the recommendations. Urinary diversion and oncology surgery consider the most surgical procedure based on clinical reasons not to be delayed. In oncology cases, the cancer stage, the outcomes of delaying, and the provision of alternative treatment modalities should be considered, considering systemic chemotherapy may cause a high risk of

Table 1. The Changes of Proportion Urological Surgery before and after Pandemic

Category	n (%)		p-value
	Before pandemic	After pandemic	
Oncology	211 (21.8)	125(21.8)	<0,001*
Urinary Diversion	257 (26.5)	213(37.3)	<0,001*
Stone	133 (13.7)	81 (14.1)	<0,001*
Pediatric	136 (14,0)	70 (12.2)	<0,001*
Emergency	79 (8.2)	47 (8.2)	<0,001*
BPH	20 (2.0)	6 (1.1)	<0,001*
Reconstruction	65 (6.7)	10 (1.7)	<0,001*
Transplantation	58 (5.9)	18 (3.1)	<0,001*
Fertility	10 (1.1)	1 (0.01)	0.022*
Total	969	571	



Graph 1. Operation proportion before and after pandemic

immunosuppression (14). Alternative therapies, including immunotherapy, target therapy, and hormonal therapy, may be preferable (15,16).

Related to the patient background, there are still performed categories of surgery that should be delayed (i.e., kidney transplantation, pediatric, and fertility). These included their accessibility to the hospital center and prolonged waiting to receive the treatment related to the referral system, which became the main challenge to complying with the guidelines and recommendations. We informed and took the consent to the patient for every possibility of COVID-19 infection when hospitalized.

Challenges were balanced with the best-practice hospital regulations in management during the COVID-19 pandemic (17,18). Several rules were made by the hospital, including monitoring the supply of Personal Protection Equipment (PPE), limitation of working hours, optimization on the daily surgical schedule, and COVID-19 screening for patients and medical and non-medical staff. Swabs and Polymerase Chain Reaction (PCR) examinations were routinely conducted on medical personnel, staff, and residents. These results were immediately followed up by the occupational medicine staff of the hospital to determine if there were any need for treatment or indications for further PCR examinations. In Italy, for the first four months of 2020, all urology surgery declined after the 1st COVID-19 case and continued after the Italian lockdown. Significant urology activities reduce during February and April 2020. The medical resources are focused on COVID-19 acute management (anesthesiologist, nurse, even urologist). Hospital beds and Intensive care were needed for hospitalized COVID-19 patients (12).

In Indonesia, we performed a similar approach since the recommendations were released in April 2020; due to the demanding need for resources from COVID-19 patients, from the start of the COVID-19 pandemic, elective surgeries, including urological procedures, most hospitals were postponed or delayed.

This approach was not only for patient safety to decrease the COVID-19 transmission in the hospitals, but most fundamentally, it was to allocate essential resources for COVID-19 management, clearing the patient wards, and keeping the intensive care unit beds for severe COVID-19 patients.

However, this also leads to a potential dilemma in patient treatment because every delay in treatment has the risk of adverse outcomes. Therefore, clinicians should assess the benefits and risks of continuing or delaying surgery, knowing that a 6–7-week period could be essential to decrease the incidence of COVID-19 cases (19,20).

The most critical cases that were not recommended to be delayed were emergency cases or cases that could cause severe harm or disability, or even death if not treated as soon as possible. Suppose non-operative management is not successful and surgery is considered necessary. It should not be delayed while waiting for the swab results, and appropriate high-risk PPE and other safety precautions should be implemented (21).

The recent data in Indonesia concerning the mortality rate among medical doctors who have died during the COVID-19 pandemic has nearly reached 401. The number is still increasing, including among urologist professionals. All urology staff and residents who work at Dr. Sardjito General Hospital have been given specific directions to comply with the guidelines. Hospital regulations combined with adherence to these guidelines provide a positive picture of the protection from COVID-19 infection among urology health workers, both staff and residents. As aforementioned above, our hospital is a tertiary referral hospital. The declined number of procedures may be caused by several factors such as patient preference, patient's fear of going to the hospital due to covid risk infection, limited referral cases by other hospitals, or local lockdown. The limitation of this study was that we were unable to identify these cofounding factors. Our future direction of this study evaluated the long-term effect pandemic that caused delayed several procedures on urology.

CONCLUSION

All of the operations in RSUP DR Sardjito were decreased, as it had shown. The Indonesian Urological Association Recommendations for Urology Surgery helped attain the patient and medical provider safety objectives.

REFERENCES

1. World Health Organization (WHO). WHO Coronavirus (COVID-19) Dashboard. https://covid19.who.int. Accessed April 5th, 2021
2. Satgas COVID RI. Data Persebaran COVID-19. www.covid19.go.id. Accessed April 5th, 2021
3. Tosepu, R., Effendy, D. S., Ahmad, L. O., 2020. The First Confirmed Cases of COVID-19 in Indonesian Citizens. Public Health of Indonesia 6(2), 70-71
4. Couarraze S, Delamarre L, Marhar F, Quach B, Jiao J, et al. (2021) The major worldwide stress of healthcare professionals during the first wave of the COVID-19 pandemic – the international COVISTRESS survey. PLOS ONE

16(10): e0257840. https://doi.org/10.1371/journal.pone.0257840

5. Helmi, Hafrida, Kusniati, R. 2020. Health Workers' Legal Protection Policy to the Coronavirus Disease 19 (Covid-19) Containment Measures. Fiat Justicia Jurnal Ilmu Hukum
6. Ginanjar, E., Puspitasari, D. A., Rinawati, W., Hasibuan, R. K., Sofiana, N. A., Satria, A. B., Pulungan, A. B., Rahman, S., Romdhoni, Putra, A. E., Soedono, R., Wismo, T., Sayifuddin, A., et al. 2020. PEDOMAN STANDAR PERLINDUNGAN DOKTER DI ERA COVID-19. IDI
7. Putra, M.D.P. et al. (2021) 'Surgery Department during Coronavirus Disease 2019 Virus Universitas Sebelas Maret to Sebelas Maret University, Open Access Macedonian Journal of Medical Sciences, 9(E), pp. 437–442. doi:10.3889/oamjms.2021.6144.
8. Spolverato G, Capelli G, Resvito A, Bao QR, Pucciarelli S, Pawlik TM, et al. The management of surgical patients during the coronavirus disease 2019 (COVID-19) pandemic. Surgery. 2020;168(1):4-10. https://doi.org/10.1016/j.surg.2020.04.036 PMid:32451162
9. Ribal, M. J., Cornford, P., Briganti, A., Knoll, T., Gravas, S., Babjuk, M., … N'Dow, J. (2020). European Association of Urology Guidelines Office Rapid Reaction Group: An Organisation-wide Collaborative Effort to Adapt the European Association of Urology Guidelines Recommendations to the Coronavirus Disease 2019 Era. European Urology. doi:10.1016/j.eururo.2020.04.056
10. Urology Society of Australia and New Zealand. Guidelines Personal Protective Equipment for Urologist during COVID-19 Pandemic. [Internet]. [updated 3 March 2020; cited 2 February 2022]. Available at: https://www.usanz.org.au/news-updates/our-announcements/usanzannounces-guidelines-ppe-urologists-covid-19.
11. Rasyid, N., Atmoko, W., Daryanto, B., Wahyudi, I. and Hamid, A.R.A.H., 2020. Rekomendasi pelayanan urologi terkait COVID-19. 1st. Jakarta: Ikatan Ahli Urologi Indonesia.
12. Dell'Oglio P, Cacciamani GE, Muttin F, Mirabella G, Secco S, Roscigno M, Rovati FA, Barbieri M, Naspro R, Peroni A, Saccà A, Pellucchi F, Bocciardi AM, Simeone C, Da Pozzo L, Galfano A; COVID-19 Niguarda Working Group. Applicability of COVID-19 Pandemic Recommendations for Urology Practice: Data from Three Major Italian Hot Spots (BreBeMi). Eur Urol Open Sci. 2021 Apr;26:1-9.
13. Heldwein, F. L., Loeb, S., Wroclawski, M. L., Sridhar, A. N., Carneiro, A., Lima, F. S., & Teoh, J. Y. C. A systematic review on guidelines and recommendations for urology standard of care during the COVID-19 pandemic. European Urology Focus. 2020. https://doi.org/10.1016/j.euf.2020.05.020
14. Wargo JA, Reuben A, Cooper ZA, Oh KS, Sullivan RJ. Immune Effects of Chemotherapy, Radiation, and Targeted Therapy and Opportunities for Combination With Immunotherapy. Semin Oncol. 2015;42(4):601-616. doi:10.1053/j.seminoncol. 2015.05.007
15. Thapa BB, Shrestha D, Bista S, Thapa S, Niranjan V. Urology during COVID-19 pandemic crisis: a systematic review. Surg J 2021; 7:e3-e10. doi: 10.1055/s-0040-1722341
16. Chan MC, Yeo SEK, Chong YL, Lee YM. Stepping Forward: Urologists' Efforts During the COVID-19 Outbreak in Singapore. Eur Urol. 2020 Jul;78(1):e38-e39. doi: 10.1016/j.eururo.2020.03.004. Epub 2020 March 17th. PMID: 32192816; PMCID: PMC7269695.
17. Brücher, B. L. D. M., Nigri, G., Tinelli, A., Lapeña, J. F. F., Espin-Basany, E., Macri, P., … Engel, A. COVID-19: pandemic surgery guidance. 4open. 2020. https://doi.org/10.1051/fopen/2020002
18. Campi, R., Amparore, D., Capitanio, U., Checcucci, E., Salonia, A., Fiori, C., … Porpiglia, F. Assessing the burden of non-deferrable major uro-oncologic surgery to guide prioritization strategies during the COVID-19 pandemic: insights from three Italian high-volume referral centers. European Urology. 2020. https://doi.org/10.1016/j.eururo.2020.03.054
19. COVID-Surg Collaborative. Global guidance for surgical care during the COVID-19 pandemic. British Journal of Surgery. 2020. https://doi.org/10.1002/bjs.11646.
20. American College of Surgeons. COVID-19: Guidance for Triage of Non-emergent Surgical Procedures. 2020. https://www.facs.org/covid-19/clinical-guidance/triage. Accessed April 3rd, 2021

21. ACS, COVID-19 Guidelines for Triage of Emergency General Surgery Patients, (2020) https://www.facs.org/covid-19/clinical-guidance/ elective-case/ emergency-surgery accessed April 21st, 2020.
22. Italian National Federation of Orders of Surgeons and Dentists (FNOMCeO). Registry of doctor deaths during COVID-19 epidemic [in Italian]. Website.https://portale.fnomceo.it/elenco-dei-medici-caduti-nel-corso-dellepidemia-di-covid-19/. Accessed April 5th, 2021
23. Fero, K. E., Weinberger, J. M., Lerman, S., & Bergman, J. Perceived impact of urologic surgery training program modifications due to COVID-19 in the United States. Urology. 2020. https://doi.org/10.1016/j.urology.2020.05.051
24. 10.1016/j.euros.2021.01.012. Epub 2021 Jan 29. PMID: 33554150; PMCID: PMC7846227.