

UROLOGICAL CASES WITH COVID 19 INFECTION IN TERTIARY HOSPITAL

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ABSTRACT

Objective: This study aims to descriptively assess confirmed cases of COVID-19 who were treated associated with genitourinary disease from February 2020 to February 2021 at General Hospital Dr. Soetomo

Materials and methods: This study used a descriptive research design with a retrospective approach using medical records. The research was conducted at Dr. General Hospital. Soetomo in the period February 2020 to February 2021. The data collected in this study were age, gender, length of stay, comorbidities, outcome, referring department, and urological diagnosis. And the data will be presented descriptively with tables and narration

Result: A total of 44 study subjects (22 male, 22 female) were obtained in this study with an average age of 45.98 years. Most of the subjects (54.55%) did not have comorbid diabetes, hypertension, or chronic kidney disease. The mean length of stay was 17.37 days, of which the majority of cases (35.59%) were diagnosed with hydronephrosis.

Conclusion: During COVID-19 pandemic, social restrictions could cause patients to delay seeking medical treatment, which can lead to complications due to related diseases. Concerns regarding renal impairment due to COVID-19 pandemic must also be considered.

Keywords: COVID-19 infection, Clinical challenges, Urological cases, Tertiary Hospital.

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Introduction

At the end of 2019, a lung infection of unknown etiology was found in the city of Wuhan and the findings were related to the seafood market in Huanan⁽¹⁾. In early 2020, the Chinese government closed all activities in the Huanan market and conducted epidemiological studies to check whether this incident was related to SARS, MERS, influenza, or avian influenza. From the results of this study, in mid-January 2020, a Coronavirus with a different genome arrangement was obtained from SARS and MERS, which was named 2019-nCoV⁽²⁾.

2019-nCoV, which was later referred to as SARS-CoV-2 because of its structural similarity to

SARS, has a protein structure that is strongly bound to the Angiotensin-converting enzyme 2 (ACE-2) receptor because all body structures that have ACE-2 receptors can act as targets. Infection from SARS-CoV-2⁽³⁾.

Research by Zou et al.⁽⁴⁾ states that the susceptibility of SARS-CoV-2 infection if the organ has 1% ACE-2 receptors which are present in the heart, intestines, esophagus, and bladder. Even urothelial tissue has an ACE-2 receptor rate of 2.4% in the bladder and 4% in the renal tubule, which has a high risk of infection. Several studies have reported the incidence of acute kidney injury (AKI) in patients with confirmed COVID-19 in as much as 29% of these incidents may occur due to sepsis or

septic shock due to cytokine storms that can damage the kidneys. More importantly, COVID-19 patients with AKI have a higher mortality rate, ranging from 60-90%⁽⁵⁾.

Interestingly, there is research showing that viral RNA is still found in the urine in cases where throat swabs have been negative^(2,6).

Epidemiology

A study of patients with confirmed COVID-19 in China reported that of all patients, 43.6% had proteinuria and 26.7% had hematuria, while 5.1% had AKI and it was related to the incidence of patient mortality. Research in Italy also reported that the incidence of AKI was 27.8% in patients who had confirmed COVID-19. And these results are not different when compared with the incidence of genitourinary side effects in SAS cases in terms of creatinine and histopathological findings⁽⁷⁾.

A post-mortem study conducted in China on COVID-19 patients reported that most of the patients who experienced death experienced acute tubular necrosis (ATN). And this study is in line with research conducted in the United States with a higher incidence⁽⁸⁾.

These findings prompted us to conduct a retrospective study of the incidence of COVID-19 infection in the field of urology at our center

Method

This study used a descriptive research design with a retrospective approach. Subjects in this study were all patients who confirmed positive for SARS-CoV 2 infection who were treated in the field of urology. This case report has received a certificate of ethical clearance from Komite Etik Penelitian Kesehatan RSUD Dr. Soetomo with Ref. No: 0354/LOE/301.4.2/III/2021. This study was also conducted in accordance with the declaration of Helsinki. Written digital informed consent was obtained from all participants.

The sampling technique used was total sampling using medical record. The data collected are name, age, gender, length of stay, comorbidities, outcome, referring department, and urological diagnosis. The data collected is presented in tabular and narrative form.

Result

From the research we conducted, there were 44 study subjects who were included in this study,

which were evenly divided into 22 male and female subjects. The average age is 45.98 years old, with the largest age range 41 - 60 years of 56.82% (Table 1).

Gender	n	%
Male	22	50
Female	22	50
Age range		
< 20	6	13.64
21 - 40	5	11.36
41 - 60	25	56.82
> 60	8	18.18
Los		
< 7 days	13	29.55
8 - 14 days	11	25
> 14 days	20	45.45
Comorbid		
DM	2	4.54
HT	3	6.82
DM + HT + CKD	4	9.09
HT + CKD	4	5.33
Others	7	15.9
No Comorbid	24	54.6
Outcome		
Alive	33	75
Death	11	25
Department		
Internal medicine	21	47.7
Obstetric	9	20.5
Urology	5	11.4
Others	9	20.5
Total	44	100

Table 1: Subject's characteristic of urological cases.

Most of the subjects involved did not have comorbid (54.55%) while some subjects had comorbid such as diabetes mellitus, hypertension, and chronic kidney disease or a combination of these comorbid. The mean length of stay of our study subjects was 17.37 days with a minority of cases requiring a LoS of less than 7 days (29.55%).

More than a quarter of the patients referred to the urology department were diagnosed with hydronephrosis (35.59%) and more than half

were problems associated with the incidence of urolithiasis. Of all the subjects we treated, 25% experienced mortality in treatment either due to COVID-19 or due to a major organic disease (Table 2).

Diagnosis	n	%
Hydronephrosis	21	35.59
Hydroureter	9	15.25
Ureterolithiasis	6	10.17
Staghorn calculi	1	1.69
Nephrolithiasis	4	6.78
Vesicolithiasis	3	5.08
UVJ stone	1	1.69
Panurethral stricture	1	1.69
Fournier Gangrene	1	1.69
susp Urethral Rupture	1	1.69
Hematuria	2	3.39
Vesical Rupture	1	1.69
Bosniak cyst	1	1.69
Bladder cancer	1	1.69
Blood Clot retention	2	3.39
BPE	1	1.69
Penis ulcer	1	1.69
Penis SCC	1	1.69
Scrotal Edema	1	1.69
Total	59	100

Table 2: Urological diagnosis.

Discussion

COVID-19 has special characteristics which tend to be severe symptoms in elderly patients and asymptomatic in young individuals; this is what causes a lack of vigilance among young people so that it can infect vulnerable people and cause severe symptoms⁽⁹⁾. These results are also visible in the research we conducted, most of the cases came from individuals aged over 40 years, which is the age group susceptible to COVID-19 infection.

The average length of stay in this study was 17.37 days with the most distribution being more than 14 days in the hospital. The duration of recovery for COVID-19 varies considerably, some studies say that for mild-to-moderate symptoms it takes 10.63-11.5 days¹⁰ and for severe symptoms, it has

a longer duration of 18.7 days⁽¹¹⁾. By looking at the condition of patients who have other comorbidities accompanied by an average age approaching the vulnerable age, it is possible that the LoS is related to recovery from COVID-19.

From cases related to COVID-19 that were treated at the urologic department, it was found that hydronephrosis was the most common diagnosis and urolithiasis-related conditions were associated with more than 50% of cases. A study examining whether there is an association between pandemic conditions and ureterolithiasis, the results show that social distancing conditions lead to an increase in complications from urolithiasis⁽¹²⁾. Therefore, emergency patients who are more likely to develop urological complications, such as suspected relapse or new malignant tumors, severe lower urinary tract syndromes, or potential obstructive/purulent urinary tract stones, should be given a higher priority, as should patients who require immediate postoperative examination.

Outpatient appointments have been reduced or eliminated as the pandemic progresses. To minimize the danger of future transmission, the EAU advises that this time should be spent utilizing telemedicine⁽¹³⁾. Telephone consultations are available for urinary tract infections, benign diseases (such as mild lower urinary tract symptoms and prostate enlargement), and follow-up cancers. Both physician and patient are required to wear masks and keep a social distance⁽¹⁴⁾. Additionally, patients should be questioned about COVID-19 exposure and symptoms⁽¹⁵⁾. Positive screening results are uncommon. If the screening result is negative, healthcare professionals and patients must be educated about infection prevention precautions.

Patients may be able to rapidly deploy telemedicine consultations from home as their use of high-speed internet and cellphones increases⁽¹⁶⁾. Telemedicine advantages include convenience, remote care, and cost savings. Simultaneously, it may aid in reducing patient contact and the danger of infection. Providers who have been quarantined or isolated may continue to operate⁽¹⁷⁾. Customers are often unaware of the benefits, services, and prices associated with telemedicine. The absence of human touch complicates remote physical exams. In the majority of nations, particularly during times of crisis or epidemic, telemedicine treatment is not legally allowed, integrated, or reimbursed⁽¹⁸⁾. Masks may also have a detrimental impact on in-person medical consultations⁽¹⁹⁾.

Maintaining social isolation successfully needs a stronger voice, which may jeopardize patient privacy and diminish enjoyment⁽¹⁹⁾.

This study has limitations, one of which is the very openness of the inclusion criteria so that some of the data collected contains only a few subjects. It is recommended that in future studies, more specific inclusion criteria be carried out so as to produce more targeted conclusions.

Conclusion

The COVID-19 condition is not only related to respiratory diseases but also has an impact on other organ systems. In addition, social restrictions cause patients to delay seeking medical treatment, which can lead to complications due to related diseases. As a consequence, concerns about kidney damage caused by the COVID-19 pandemic must also be considered.

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