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Impact of Covid-19 pandemic on urology practice in tertiary hospital in Banda Aceh, Indonesia: a descriptive study

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ABSTRACT

Introduction: Coronavirus disease-19 (Covid-19) pandemic has brought a dramatic change in health care worldwide, including urologic care. Patients requiring non-covid care are encouraged to avoid hospital visits and postpone elective surgeries to reduce the risk of transmission and anticipate a surge in Covid-19 patients. This study aims to describe Covid-19-related changes in urologic care in tertiary hospitals in Banda Aceh, Indonesia.
Methods: This is a descriptive study in dr. Zainoel Abidin Regional General Hospital, Banda Aceh. The number of outpatients' visits and urologic surgeries performed in March – October 2020 were recorded and compared to the numbers within the same period in 2019. The most common surgery performed during a pandemic is determined.
Results: The number of outpatient visits in March – October 2020 was 2,595 visits, while in 2019 was 3,886. There was a 54.29% decrease in March-May 2020 and a 17.76% decrease in June – October 2020. The number of surgeries carried out in March – October 2020 was 381, while in 2019 was 264. The most common surgeries performed during the pandemic is stones removal (n = 119) and reconstructive surgeries (n = 104).
Conclusion: There were decreases in both number of outpatients' visits and surgeries performed during the Covid-19 pandemic. The most common urologic surgery carried out during the pandemic were stones removal and reconstructive surgeries.

Keywords: Covid-19, Outpatients, Surgery, Urology
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INTRODUCTION

Coronavirus disease 2019 (Covid-19) caused by severe acute respiratory syndrome coronavirus-2 (Sars-CoV-2) emerged originally in Wuhan, China, on December 2019. By March 11, 2020, World Health Organization (WHO) declared a global pandemic. As of November 12, 2020, there have been 51,848,261 confirmed cases of Covid-19, including 1,280,868 deaths worldwide.[1] In Indonesia, the first Covid-19 case was detected in Jakarta on March 2, 2020. Soon Jakarta became the epicenter of the Covid-19 pandemic in Indonesia, followed by reports in several major cities, including Bandung, Surabaya, Semarang and Banda Aceh.[2]

The pandemic has led to dramatic changes in various sectors worldwide, particularly healthcare. Healthcare authorities have taken drastic measures in an attempt to get the emerging infections under control. Many hospitals were converted into Covid-19 centers, providing care specifically for Covid-19 patients. Chronically ill patients were encouraged to reduce outpatients' visits to maintain social distancing within hospitals, reducing the risk of infections among patients and healthcare workers.[3] Professional associations, including the American Urological Associations (AUA), American College of Surgeons, and European Association of Urology (EAU), also recommend postponing elective surgeries.[4] Subsequently, medical service for patients unrelated to Covid-19 was limited. There was a delay of >8 weeks for 28% of outpatient clinics, 30% of outpatient investigations and procedures, and 31% of urological surgeries. The delay affected mostly outpatient clinics for benign conditions. Followed by benign but potentially urgent urological conditions such as renal transplantation and ureteric stone. Outpatient clinics for malignant conditions, however, were less affected.[5] Collins et al. also reported the reduction of operations performed compared to those carried out within the same period in 2019.[6]

It is important to acquire current situational analysis to develop a new system facilitating optimal care for urologic patients during the Covid-19 pandemic. The new system should balance optimal care for patients and the risk of dispersing infections among patients and health workers. This report may aid in providing situational analysis, which may serve as a basis for developing the intended system. This report may also be used to predict and prepare for facing future problems that may emerge once the pandemic ceases.

METHODS

This is a descriptive study in dr. Zainoel Abidin Regional General Hospital Banda Aceh. Data of activities of the Urology Department in March-October 2020 were obtained through medical record collection. The sampling technique used was consecutive sampling. The overall number of outpatients' visits was compared to those of 2019, as well as the number of urologic surgeries carried out. Details of surgical procedures performed were recorded and compared to those of 2019. Percentage decrease ([initial value – original value]/original value*100%) was used to assess the degree of reduction in departmental activities. Data analysis using univariate analysis by presenting data in frequency and percentage.

RESULTS

The number of Covid-19 cases in Aceh Province and Banda Aceh is illustrated in **Figure 1.** The number of outpatients' visits in March – October 2020 was 2,595 compared to 3,886 in 2019. As implied in **Figure 2**, the decrease percentage of outpatients' visits was higher in March-May 2020 (54.29%) compared to June – October 2020 (17.76%). The overall decrease percentage of outpatients' visits was 33.27%. The number of outpatients' visits was lower in 2020, except in June, where outpatients' visits were higher in 2020 compared to 2019 (404 *vs.* 360).

The overall number of urologic surgeries performed in March – October 2020 was 381 compared to 264 taking place within the same period in 2019. The number of surgeries performed in 2020 and 2019 each month is illustrated in **Figure 3**. The percentage decrease of urologic procedures performed during the Covid-19 pandemic in Banda Aceh was 30.71%.

As illustrated in **Figure 4**, the percentages of procedures performed in 2020 were slightly different from the previous year. In both 2020 and 2019, the most common urologic procedures performed in dr. Zainoel Abidin Regional General Hospital was stones removal. In 2019, the second leading procedures carried out were oncology procedures, while in 2020, oncology procedures were

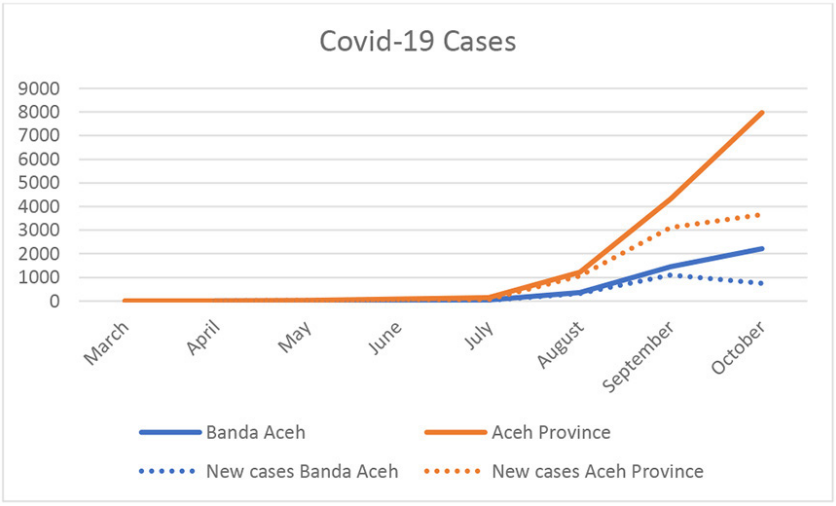

Figure 1. Number of Covid-19 Cases in Aceh Province and Banda Aceh March - October 2020

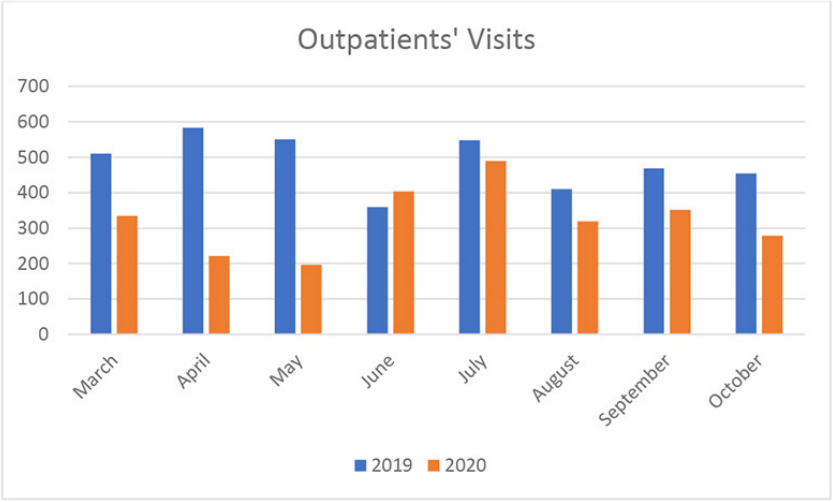

Figure 2. Number of Outpatients' Visits in 2020 vs 2019

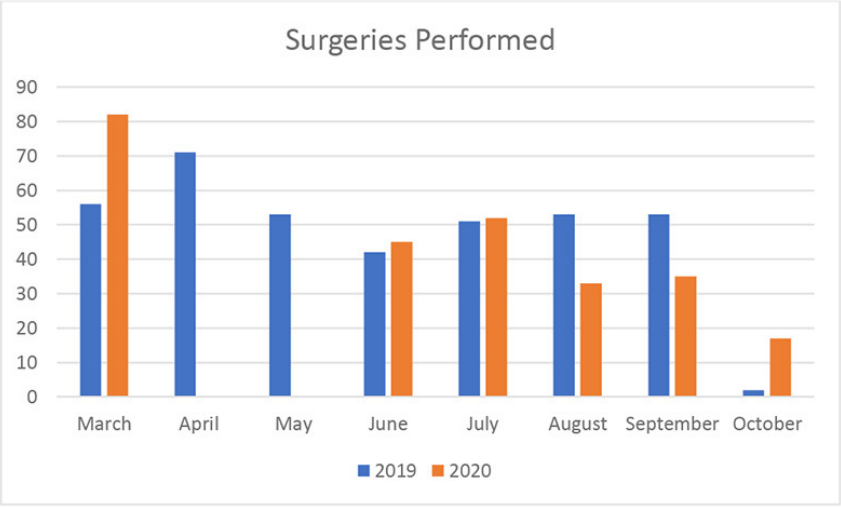

Figure 3. Number of Surgeries Performed in 2020 vs 2019

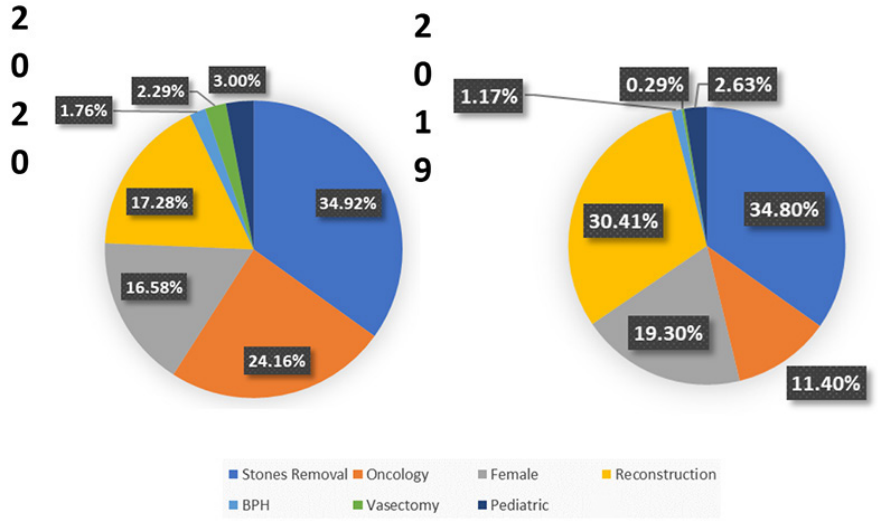

Figure 4. Percentage of Specific Procedures Carried Out

Table 1. Number of Specific Procedures Carried Out

Name of Procedures	2020 (n)	2019 (n)	Decrease Percentage (%)
Stones Removal	119	198	39.89
Oncology	39	137	71.53
Female	66	94	29.79
Reconstruction	104	98	-6.12
BPH	4	10	60
Infertility	1	13	92.30
Pediatric	9	17	47.05

replaced by reconstructive surgeries. The least common procedures performed in 2019 were procedures to treat benign prostatic hyperplasia (BPH), while infertility surgery became the least common procedure performed in 2020.

DISCUSSION

The number of outpatients' visits in March – October 2020 was lower compared to that of 2019. The overall decrease percentage of outpatients' visits was 33.27%. As implied in **Figure 1**, the decrease percentage of outpatients' visits was higher in March-May 2020 (54.29%) compared to June – October 2020 (17.76%). Patients' intense fear of exposure to Covid-19 during the first three months of pandemic may decrease. However, the decrease percentage of outpatients' visits in June – October 2020 was lower. On June 5, 2020, Jakarta Provincial Government ended large-scale social restrictions and began the transitional phase of social restrictions. This may contribute to more outpatients' visits starting in June 2020.

The number of outpatients' visits per month was invariably lower in 2020, except in June when outpatients' visits were higher in 2020 compared to 2019 (404 *vs.* 360). This may be explained by the reopening of operation rooms in dr. Zainoel Abidin Regional General Hospital, which will occur in June 2020. The reopening may lead to more visits of those who require preoperative care and consultation before undergoing surgeries. Cacciamani et al.[3] reported a reduction of outpatients' visits subsequent to U.S health systems reorganization to prepare for a surge of Covid-19 patients, allowing only patients whose conditions require urgent care to visit the hospital. Those with relatively stable conditions were encouraged to switch to telemedicine platforms to mitigate the transmission of the virus.

Similar to previous reports, the overall number of urologic surgeries performed in March – October 2020 was inferior to that in 2019. Chiancone et al.,[7] reported a lower number of surgeries during the first four weeks of the pandemic (99 *vs.* 181) in Italy. Collins et al.,[6] reported 159 surgeries performed in 2020, compared to 280 carried out within the same period in 2019. Reduction of surgeries performed was encouraged by various medical professional organizations, including American Urological Association. It is important for urologists to assess whether the risk caused by underlying diseases of the patients outweighs the risk of them being exposed to Covid-19. Elective surgeries were deferred to preserve resources and protect medical workers from possible exposure to the virus.[3]

Interestingly, the number of surgeries performed in March, June and July 2020 were higher than those performed in the same months in the previous year. It is important to note that the first confirmed Covid-19 case in Banda Aceh was reported by the end of March 2020, before which surgeries were performed without restrictions. In other words, most surgeries occurring in March 2020 were unaffected by the pandemic because they took place before the restrictions began. The percentage decrease of urologic procedures performed during the Covid-19 pandemic in Banda Aceh was 30.7%. However, when procedures in March were excluded from the calculation, the percentage decrease became 44%.

This result may not be similar to reports in other centers in Indonesia, mainly those located in Java Island. Restrictions may be ordained earlier in those centers as confirmed cases in those regions were reported earlier in March 2020. Geographical location may contribute to the relatively slower transmission of Sars-CoV-2 to Aceh Province as it is located further to Jakarta as the epicenter of the Covid-19 pandemic in Indonesia. Following report of the first Covid-19 case in Aceh Province, all surgical procedures initially planned to take place in dr. Zainoel Abidin Regional General Hospital was pushed back, resulting in the absence

of surgeries performed in April and May 2020. In June 2020, the operation rooms were reopened, allowing previously postponed procedures to take place, hence the temporary surge in several surgeries performed. The most common urologic procedures performed in dr. Zainoel Abidin Regional General Hospital before and during the pandemic was stones removal. This result was contradictory to previous study by Teoh which state that surgeries for benign conditions including renal and bladder stones were mostly affected. Teoh et al., however, classified surgeries for ureteric stone as surgeries for benign but potentially urgent conditions, owing to the risk of reduced kidney function caused by delayed treatment. According to Teoh et al.,[5] surgeries for benign but potentially urgent conditions were less affected.

Urologic oncology surgeries were the second most common urologic procedures performed before the pandemic. However, during the pandemic, there was reduction of urologic oncology surgeries carried out. This may be explained by a high number of older urologic oncology patients posed greater risk of developing severe symptoms if exposed to Covid-19. It is well-known that advanced age and comorbidities were related to worse outcome and mortality.[8] However, this result contradicts the previous study by Teoh et al. which reported that surgeries for urological cancers were less affected than surgeries for benign conditions, including renal stones and bladder stones.[5] According to previous study, most urologists also prioritized oncological conditions over benign conditions, particularly those with the greatest malignant potential.[9]

Other surgeries, including surgeries for treating BPH and female urinary incontinence also infertility procedures were performed less during the pandemic, owing to the benign nature of the underlying conditions. Infertility surgery was the most heavily affected by the pandemic, with decrease percentage of 92.30%. Only one patient underwent infertility surgery between March – October 2020. It is interesting to note that more reconstructive surgeries were performed in 2020 compared to 2019. This may result from an increased number of traumatic injuries of the genitourinary tract. The study's limitations include lack of details in outpatients' visits, surgical procedures carried out, and statistical analysis. In addition, we only include activities in Urology Department in one hospital. Future studies with more details regarding surgical procedures recorded are encouraged.

CONCLUSION

Covid-19 pandemic brings about a decrease in outpatients' visits and surgeries. The most common procedure carried out during and before pandemic were stones removal. It is important to determine whether the risk of delaying treatment outweighs the risk of Covid-19 exposure.

DISCLOSURES

Conflict of Interest

All authors declared that there is no conflict of interest regarding this publication

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This study was self-funded without any contribution from third party.

Author Contribution

All authors contributed equally in the writing of this article

Ethic Approval

This study had been ethically approved by ethical commission in our institution.

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