Background: This survey was designed and conducted during the lockdown period to assess its effect on urology practice dealing with patients with voiding dysfunction and their care in the Gulf Cooperation Council (GCC) region.

Methods: An online survey was sent across to urologists managing patients with voiding dysfunction in countries of the GCC region through various social media platforms. All valid responses were tabulated and analyzed.

Results: A total of 202 responses were received. Higher proportion of urologists in private sector (98.2%) were treating patients in comparison to those in public or governmental hospitals (82.7%); \( P = 0.007 \). Telemedicine was used by 72% of the respondents. Telephone calls were preferred With regard to perception of risk while examining patients, 65% of the respondents felt that their risk was equal to other specialties. Their preferred prevention strategy would be pre-operative screening. Financial impact affected only 10% claimed major catastrophic effect. There was a significant difference between private and public government urology services provided, with a higher proportion of patients seen, operations performed, fees charged for telemedicine, and financial effect in the private sector with \( P = 0.012, P = 0.037, P = 0.004, \) and \( P = 0.001, \) respectively.

Conclusion: Our survey showed that majority of urologists in the GCC region were seeing patients during COVID-19 lockdown. Emergency services were prioritized. A large proportion of urologists had switched over to telephonic communication. Most of the responding urologists were uncertain about when and how to resume surgical procedures upon easing of the COVID-19-related restrictions.

Keywords: 2019-nCoV, corona, coronavirus, functional urology, lockdown, LUTS, SARS, voiding dysfunction
INTRODUCTION

In December 2019, coronavirus disease-19 (COVID-19) was first described in Wuhan, China, and the new acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) was identified as the causative agent. Due to its rapid spread, by March 11, 2020, it has been announced by the World Health Organization as a pandemic when there were 118,000 cases in 114 countries and 4291 deaths.\(^1,2\)

With the rapid spread of SARS-COV-2, many countries and health systems around the world took a variety of measures to contain the disease and minimize its spread. Some countries adopted screening measures along with quarantine, others banned international traveling, while some announced a state of national emergency and a curfew was applied.

Health-care sector was also affected by this pandemic where many changes and regulations were applied to face the pandemic. Some of the actions were taken in urology departments around the world including, but not limited to, the cancellation of outpatient visits, screening of planned visits, the implementation of telehealth practices, or rescheduling appointments for a few months later.\(^3\)

On the other hand, some urologists were only evaluating and managing patient with urgent oncological conditions. Even oncological procedures were held at some places due to a lack of resources.\(^3\)

Many authors believe that the current situation will have an impact on the prognosis of patients with oncological issues. Furthermore, patients with benign conditions such as voiding dysfunction will have a significant negative impact due to the delay in management.

This survey was designed and conducted during the lockdown period to assess the effect of COVID-19 on urology practice dealing with patients with voiding dysfunction and their care in the Gulf region.

METHODS

An online survey created through Google Forms was created and circulated among urologists practicing in the Gulf Cooperation Council (GCC) countries on the May 4, 2020, while lockdown was enforced. Local ethics committee ruled that no formal ethics approval was required in this particular case. The invitation to participate was circulated through multiple groups on social media. Each Gulf country was represented by one of the authors who is accessing the local urology society and distributing questionnaire throw their local urology database assuring that they are actively practicing, the questionnaire was not including any retired or under training urologists. There was no difference between governmental and private setup.

The survey consisted of 15 questions [Table 1]. The questionnaire included doctor e-mail and mobile number to avoid duplication. The questionnaire was open for a period of 7 days. It was mandatory to answer all questions. All online filled data were transferred into Excel files coded and analyzed using SPSS software to be reliable. We did not use Google statistics. Association between categorical variables was assessed using Fisher exact test or Chi-squared test. We considered \(P<0.05\) as statistically significant.

RESULTS

A total of 202 responses were received by May 11, 2020. More details of respondents’ demographics are in Table 2. The respondents were asked to specify the nature of their practice and percentage of their patient care dealing with lower urinary tract dysfunction (voiding dysfunction). Of all, 71.8% (145/202) were working in government/public hospitals and 28.2% (57/202) were in private sectors either hospitals or their private clinics.

Data analysis showed that a significantly higher proportion of urologists in private sector (56/57, 98.2%) were seeing patients as compared to those in public governmental hospitals (120/145; 82.7%); \(\text{P} = 0.007\).

When respondents were asked if they were still seeing patients, 87.1% were still examining and seeing patients in clinics (176/202). Of those 176 urologists receiving patients in their clinics, 87 (49.4%) were accepting all emergency and nonemergency conditions in their clinics [Figure 1]. Of the same 176 responders seeing patients in the clinic, 86% (152/176) were performing surgical procedures. However, of the whole group, the majority (81.6%, 165/202) were still operating patients, 95.7% of which (158/165) indicated that surgical procedures were performed mainly for emergency conditions [Figure 2].

The questionnaire also explored telemedicine acceptance and preferences. We found that 72% (146/202) of the respondents were using telemedicine. Telephone calling was the preferred method for follow-up by 69% (101/146) and
24.6% (36/146) used social media (Twitter, WhatsApp), while 9% (19/202) did not introduce telemedicine in their practice, and 18% (37/202) were planning to use it.

Of those who were currently involved in telemedicine, 76% (111/146) were not asking for any professional fees from patients; 14% (21/146) their hospital system was charging fees, while 4.7% (7/164) were charging fees less than one person’s consultation, 2% (6/146) charged the same fee, and a small minority 0.6% (1/146) were charging higher than usual fees.

With regard to the perception of risk urologists were face while examining patients, given the scenario of the global COVID-19 pandemic, only 12% (26/202) felt that they have

Table 1: Questionnaire survey and it answers

| Question                                                                 | Answer                                                                 |
|-------------------------------------------------------------------------|------------------------------------------------------------------------|
| 1: Which country you are representing?                                  | KSA, Kuwait, Bahrain, UAE, Qatar, Oman, Consultant, Specialist, General urology, Voiding dysfunction, Others, specify <20%, 50%, >50% |
| 2: What is your current position?                                       | Consultant, Specialist, General urology, Voiding dysfunction, Others, specify |
| 3: Nature of your practice?                                             | General urology, Voiding dysfunction, Others, specify                  |
| 4: What percentage of your patient care are dealing with lower urinary tract dysfunction (voiding dysfunction)? | <20%, 50%, >50%                                                      |
| 5: Which represents your clinical practice?                             | Public hospital, Private hospital, Private clinic                        |
| 6: Are you seeing the patient during the lockdown?                      | No, Yes                                                               |
| 7: If yes what kind of patients you see?                                | Emergency, Infections, Retention, BPH, Incontinence cases, Neurogenic patients, All patients, All emergencies, Cystoscopy, TURP, Sling procedures, UDS, Intravesical injections, Greenlight laser prostatectomy, Urethral procedures |
| 8: What cases are you currently operating?                              | No, Planning to do so, Phone, Video calls, Social media (e-mail, WhatsApp, Telegram) |
| 9: Have you started video, e-mail social media consultations?           | No, Planning to do so, Phone, Video calls, Social media (e-mail, WhatsApp, Telegram) |
| 10: In regard to telemedicine, are you charging fee?                    | No, The hospital or clinic are charging fees but 0 balance for me, Yes the same as in-person consultation, Yes higher than the usual fee, Yes, lower than the in-person consultation, Lower risk, Equal risk, Higher risk, Restrict elective surgeries, Wait 2 weeks before starting, Not sure when to start, Waiting international recommendations, Screen all cases for COVID-19 preoperative, Use additional PPE in all cases, Both preoperative screening and PPE, Not sure awaiting guidelines, No much effect, stable monthly payment, Minor effect, missing some of bonus, Major catastrophic effect, no work no payment |
| 11: From the current international available information what is your opinion regarding the risk that you face regarding COVID-19 in comparison to other branches of Urology? | Lower risk, Equal risk, Higher risk, Restrict elective surgeries, Wait 2 weeks before starting, Not sure when to start, Waiting international recommendations, Screen all cases for COVID-19 preoperative, Use additional PPE in all cases, Both preoperative screening and PPE, Not sure awaiting guidelines |
| 12: Upon easing of COVID-19 related restrictions what would be your plan regarding elective surgeries? | Lower risk, Equal risk, Higher risk, Restrict elective surgeries, Wait 2 weeks before starting, Not sure when to start, Waiting international recommendations, Screen all cases for COVID-19 preoperative, Use additional PPE in all cases, Both preoperative screening and PPE, Not sure awaiting guidelines |
| 13: Regarding surgeries that would be planned after resumption of clinical duties, what would be your preferred approach? | Lower risk, Equal risk, Higher risk, Restrict elective surgeries, Wait 2 weeks before starting, Not sure when to start, Waiting international recommendations, Screen all cases for COVID-19 preoperative, Use additional PPE in all cases, Both preoperative screening and PPE, Not sure awaiting guidelines |
| 14: What was the effect on your financial status over the lockdown period? | No much effect, stable monthly payment, Minor effect, missing some of bonus, Major catastrophic effect, no work no payment |

TURP: Transurethral resection of the prostate, BPH: Benign prostatic hyperplasia, PPE: Personal protection equipment, COVID-19: Coronavirus disease-19, UDS: Urodynamic test
been at a higher risk of contracting COVID-19 compared to other specialties when it comes to examining patients, but 65% (132/202) felt that their risk was equal to other specialties. The last part of the survey focused on strategies upon resumption of regular clinical duties after the lockdown period. When asked about plans regarding elective surgeries

| Table 2: Questionnaire answers according to Gulf Cooperation Council country |
|-----------------------------------------------|
| Saudi Arabia | Kuwait | Bahrain | Qatar | UAE | Oman | Total |
|----------------|--------|---------|-------|-----|------|-------|
| Total responders | 60 | 35 | 14 | 42 | 27 | 24 | 202 |
| Consultant | 48 | 10 | 12 | 26 | 17 | 10 | 123 |
| Specialist | 12 | 25 | 2 | 16 | 10 | 14 | 79 |
| General Urology | 38 | 27 | 10 | 30 | 23 | 21 | 149 |
| Other subspecialty | 13 | 5 | 4 | 11 | 4 | 3 | 40 |
| Voiding dysfunction | 9 | 3 | 0 | 1 | 0 | 0 | 13 |
| Percent voiding dysfunction cases (%) | | | | | | | |
| >50 | 14 | 9 | 2 | 7 | 4 | 5 | 41 |
| 50 | 24 | 12 | 9 | 20 | 16 | 7 | 88 |
| <20 | 22 | 14 | 3 | 15 | 7 | 17 | 73 |
| Governmental hospital | 48 | 31 | 8 | 30 | 9 | 19 | 145 |
| Private hospital | 11 | 3 | 5 | 9 | 10 | 5 | 49 |
| Private clinic | 1 | 1 | 1 | 3 | 2 | 0 | 8 |
| Doctor seeing patient during lockdown | 47 | 33 | 14 | 36 | 22 | 24 | 176 |
| Not seeing patient during lockdown | 13 | 2 | 0 | 6 | 5 | 0 | 26 |
| Type of patients seen | | | | | | | |
| Emergency | 34 | 23 | 3 | 21 | 13 | 13 | 107 |
| Infections | 0 | 1 | 0 | 2 | 0 | 0 | 3 |
| Neurogenic bladder | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| All patients | 24 | 11 | 11 | 16 | 14 | 11 | 87 |
| Retention | 1 | 0 | 0 | 2 | 0 | 0 | 3 |
| Urologist doing operations | 44 | 30 | 14 | 35 | 19 | 23 | 165 |
| Not doing operations | 16 | 5 | 0 | 7 | 8 | 1 | 37 |
| Type of operations done | | | | | | | |
| Emergency | 55 | 32 | 12 | 41 | 24 | 24 | 188 |
| Cystoscopy | 3 | 2 | 0 | 0 | 1 | 0 | 6 |
| TURP | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| UDS | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| Green laser prostate | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Urethral procedures | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Telemedicine | | | | | | | |
| Not using | 9 | 2 | 1 | 4 | 0 | 3 | 19 |
| Phone call | 25 | 12 | 9 | 32 | 17 | 6 | 101 |
| Social media | 14 | 13 | 2 | 3 | 1 | 3 | 36 |
| Planning to use | 7 | 5 | 2 | 3 | 8 | 12 | 37 |
| Video calls | 5 | 3 | 0 | 0 | 1 | 0 | 9 |
| Fee for telemedicine | | | | | | | |
| Non | 46 | 30 | 14 | 37 | 11 | 23 | 161 |
| Hospital system charging | 8 | 3 | 0 | 3 | 11 | 1 | 26 |
| Yes lower than regular | 4 | 0 | 0 | 0 | 3 | 0 | 7 |
| Yes same as regular | 2 | 1 | 0 | 2 | 2 | 0 | 7 |
| Yes more than regular | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Urologist risk during COVID-19 | | | | | | | |
| Low risk | 17 | 4 | 4 | 9 | 4 | 6 | 44 |
| Equal risk to other specialties | 40 | 27 | 10 | 23 | 19 | 13 | 132 |
| High risk | 3 | 4 | 0 | 10 | 4 | 5 | 26 |
| Plan surgeries on ease of restrictions | | | | | | | |
| Restrict elective surgeries | 13 | 8 | 1 | 7 | 3 | 7 | 39 |
| Wait 2 weeks | 3 | 2 | 3 | 1 | 3 | 0 | 12 |
| Not sure what to do | 19 | 11 | 2 | 16 | 4 | 5 | 57 |
| Wait for international recommendation | 25 | 14 | 8 | 18 | 17 | 12 | 94 |
| Preventive approach | | | | | | | |
| Screening for COVID-19 | 13 | 6 | 5 | 20 | 6 | 1 | 51 |
| Additional use PPE | 5 | 3 | 1 | 2 | 3 | 3 | 17 |
| Both screening and PPE | 11 | 10 | 3 | 6 | 6 | 7 | 43 |
| Wait international guidelines | 31 | 16 | 5 | 14 | 12 | 13 | 91 |
| Financial effect of lockdown | | | | | | | |
| No effect | 30 | 17 | 4 | 19 | 12 | 15 | 97 |
| Minor effect | 23 | 17 | 9 | 17 | 11 | 6 | 83 |
| Major effect | 7 | 1 | 1 | 6 | 4 | 3 | 22 |

TURP: Transurethral resection of the prostate, PPE: Personal protection equipment, COVID-19: Coronavirus disease-2019, UDS: Urodynamic test
upon easing of the COVID-19-related restrictions, 46.5% (94/202) stated that they would wait for international recommendations before resuming elective procedures, while 19% (39/202) would restrict elective surgeries. For preferred prevention strategy with regard to preoperative screening, less than half of the responding urologists (45%, 91/202) were uncertain about what should be done and were awaiting guidelines; 25% (51/202) indicated that they wished to undergo screening for COVID-19 preoperatively; 8% (17/202) would prefer to use additional personal protection equipment (PPE). For surgeries, 21.2% (43/202) indicated that they would perform pre-operative screening for COVID-19 as well as the use of PPE for all surgeries.

When questioning the effect of lockdown period on financial status, 48% (97/202) did not have a noticeable effect as they were receiving stable monthly payments, while 41% (83/202) had a minor effect. Only 10% (22/202) claimed a major catastrophic effect (no work no payment).

One-way ANOVA test to compare means of urologist responses between governmental and private sectors showed significant difference with a higher proportion of urologists in the private sector seeing patients during the lockdown period compared to the public sector. This could be explained, in our opinion, that most large public hospitals were largely shifted to the management and care of COVID-19 patients in terms of different resources including personnel and equipment.

Regarding the effect on the financial status, a larger proportion of participants (48%) have not been affected by COVID-related restrictions, while a minority (10.9%) suffered a significant financial impact due to the lockdown. This can be explained by the fact that overwhelming urologists were practicing in public hospitals or large private hospitals, in addition to the significant financial support by the governments to the health-care sector, especially at this difficult time.

Performing surgical procedures in such a pandemic has the potential to put the patients and urologists at risk of cross-infection and therefore actions should be undertaken carefully. As a response to this pandemic, many hospitals around the world have canceled elective procedures and only emergencies as well as high-risk cases were performed. A similar situation was observed in our study where most participants indicated that only emergency procedures were undertaken. A group of urologists from Italy gave similar recommendations. In addition, they strongly recommended continuing to operate on high-risk oncological cases. Puliatti et al. also published similar recommendations for emergency and high-risk oncological cases.[3,4]

During the lockdown period taking into account the effort exercised to keep social distancing, around half the participant urologists were conducting consultations through phone calls, and the majority (79.7%) of the teleconsults were free of charge. The main goal for a urologist is to deliver optimal urological care to patients and in the current pandemic, protecting patients from getting COVID-19 as well as health-care workers is a paramount consideration. That where telemedicine gained extreme popularity from both doctors and patients. Many

DISCUSSION

Our study showed that despite the lockdown and social distancing protocols applied on a national basis, the majority were still practicing, including those working in the private sector. Interestingly, the private sector had a higher proportion of urologists who were seeing patients during the lockdown period compared to the public sector. This could be explained, in our opinion, that most large public hospitals were largely shifted to the management and care of COVID-19 patients in terms of different resources including personnel and equipment.
authors investigated and tried to categorize patients for whom the telemedicine approach would be sufficient. A study was conducted evaluating the patients’ perspective regarding telemedicine and the majority of patients preferred telemedical consultations during the pandemic, while a minority (2.5%) preferred personal contact. They also divided patients into those eligible and not eligible for telemedicine based on COVID-19 risk assessment where eligibility was higher for oncological patients as they have more risk factors. They concluded that patients with more risk factors and urological malignancies are significantly more often eligible for telemedicine. Larson et al. showed that telemedical intervention in cancer patients is comparable with face-to-face interaction regarding the quality of life. However, no data exist about the oncological outcome in patients who received consultations in telemedicine form.\(^5,6\)

With the uncertainty that accompanied the lockdown period, most urologists prefer to wait for guidelines that would regulate the return of clinical and surgical duties for elective cases as to the pre-COVID era.

During this pandemic, the European Association of Urology published guidelines aiming to help and support urologists to categorize and select appropriate patients as they recommended to treat only high priority and emergency cases surgically, where many preventive strategies have been recommended including preoperative testing of asymptomatic patients whenever possible within 48 h prior to surgery as those asymptomatic patients who tested positive after they have undergone surgery had a poor outcome.\(^7\)

A minority of the participant urologists felt that they were at a higher risk of acquiring COVID-19 compared to other specialties. However, upon reviewing the literature, one study in China found SARS-CoV-2 RNA in the urine of four COVID-19 patients out of a total of 58 patients studies.\(^8\) in addition, another study reported that blood from COVID-19-positive patients has been transfused in seven patients, and none of the recipients developed symptoms. The latter study concluded that transfusion transmission of SARS-CoV-2 to recipients did not occur.\(^9\)

However, disposable equipment has been encouraged to be used to minimize the risk of contamination.

Limitations of your study include the number of included urologists. We expected the response would have been larger if we have had included all practicing urologists not just specialists and higher. However, we decided not to include them since they are not decision-makers and would follow whatever their consultants would decide. Another limitation is to study the status of COVID-infected urologist with these practices but was not done at the time of survey as restrictions applied at that time for the diagnostic test. Selection Bias can be a limitation as cannot be excluded, but we tried our maximum effort to distribute to all accessible centers in GCC.

**CONCLUSION**

Our survey showed that majority of urologists in the GCC region were seeing patients during COVID-19 lockdown. Emergency services were prioritized. A large proportion of urologists had switched over to telephonic advice or other forms of telemedicine to assist patients. Most of the responding urologists were uncertain about when and how to resume surgical procedures upon easing of the COVID-19-related restrictions. Regulatory bodies should take note of this and issue appropriate guidelines.

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**Conflicts of interest**

There are no conflicts of interest.

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