



# Technology-based management of neurourology patients in the COVID-19 pandemic: Is this the future? A report from the International Continence Society (ICS) institute

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## Abstract

Coronavirus disease-2019 (COVID-19) pandemic significantly altered our daily life as well as our professional practice. COVID-19 has disrupted our lives both professionally and personally. We know the urological management in a neurogenic patient needs to be tailored to the individual circumstances, this is even more pertinent during these uncertain times. International Continence Society is the premier international organization in functional urology. Lately, it has established an institute to facilitate teaching and training opportunities all over the world. The School of Neurourology teamed with the School of Modern Technology and set up a Webinar—"How to manage the neurourological patients in the current pandemic." This was set up as a case-based discussion to deliberate the management of our patients in the present climate and examine the role of modern technology in overcoming the current barriers.

## KEYWORDS

COVID-19, neurourology, technology, telemedicine

## 1 | CURRENT STATUS OF COVID-19 DISEASE AROUND THE GLOBE: THE ROLE OF ICS SCHOOLS IN THIS PERIOD—WEBINAR-BASED TEACHING

We are living in an unprecedented time. Coronavirus disease-2019 (COVID-19) has disrupted our lives both professionally and personally. In these challenging times, the demand on health care has put enormous pressure on all of us. We not only have to look after patients with COVID-19 but additionally have to provide ongoing care to our existing patients, quite a significant proportion of them have challenging health care needs. We know the urological management in a neurogenic patient needs to be tailored to the individual circumstances, this is even more pertinent during these uncertain times.

International Continence Society (ICS) is the premier international organization in functional urology. Lately, it has established an Institute to facilitate teaching and training opportunities all over the world. The ICS Institute brings together experts from around the globe. The directors of the institute feel at this time of international crisis to utilize ICS platform to share the challenges we are all facing in managing our patients. We feel in the current environment that our colleagues need support with some recommendations that can not only help to keep our patients safe but also alleviate apprehensions in both health care givers and patients which we are still looking after our neurogenic patients in the current climate in the best way possible, in addition to, playing our part in supporting the wider efforts to control the crises facing us.

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## 2 | COMMENTS AND QUESTIONS FROM DELEGATES IN WEBINAR AND OUR COMMENTS

Institute Directors Rizwan Hamid (School of Neurourology) and Emre Huri (School of Modern Technology) conducted a live case-based discussion on Friday, 24th April 2020. The experts discussed the challenges in current management of neurogenic bladder with a case of multiple sclerosis as a reference. The main aim was how to use modern technology, alternative management strategies, and how functional urologists and neuro-urologists can manage their patients in the current pandemic with COVID-19.

The webinar was very well attended, and there were 25 comments from the participants. As one would expect, the comments reflected the varying practice from different parts of the world. However, there was a common theme that all physicians have stopped elective surgery and face to face consultations for neurogenic patients. There appeared to be an increasing use of modern technology with telemedicine and apps to communicate with patients. There was some concern with regard to the patients with high pressure bladders, it was felt that without adequate follow-up and not performing botulinum toxin A (BTX-A) injections, the upper tracts may be at risk. It was also suggested to carry out local anesthesia procedures with adequate personal protection to ensure the patients at risk continue to receive the treatment they require.

## 3 | EVALUATION OF GUIDELINES FOR MANAGEMENT OF NEUROUROLOGY PATIENTS

There has been a variety of recommendations and guidelines from various international organizations during this pandemic. This includes European Association of Urology,<sup>1</sup> ICS,<sup>2</sup> British Association of Urological Surgeons,<sup>3</sup> and National Institute for Health and Care Excellence.<sup>4</sup> All organizations acknowledge that most of these are recommendations based on expert opinion and need to be tailored to local health care systems and needs.

In addition, it must be emphasized that different countries are at different points of the pandemic. All have unique set of challenges that need to be taken into account whilst adjusting services in these uncertain times.

Accepting these limitations, most of the organizations have proposed the following recommendations in the management of a neurourological patient.

1. All planned surgical procedures for neurourological indications should be postponed (except as listed below).
2. All face to face out-patients appointments should be cancelled.
3. Encourage clinicians to undertake telephone and video consultations where possible. This will not only help alleviate patients concerns that they have not been forgotten but can also identify those patients in need for urgent consultations.
4. The patients already admitted to rehabilitation units and neurology wards would have ongoing neuro-urological issues. These patients need to be provided with urological input but adequate personal protection equipment should be worn as per local protocols to minimize the risks to health care professionals.
5. No elective surgical procedures should be undertaken (except as below).
6. All urodynamic studies should be postponed both on in-patients and out-patients.

### 3.1 | Emergencies

These would continue to be managed as per existing protocols. The specific indications for our patients would be: problems with catheter blockage, urosepsis requiring hospitalization, and patient is going into renal failure

### 3.2 | Modern technology

We feel modern technology and telemedicine have acquired a central role at this time. Many of our neuro-urological patients are young and “tech savvy” and with recent modifications can use smart phones.

## 4 | NEUROUROLOGY PATIENTS CHALLENGES IN COVID-19 OUTBREAK

Patients with neurogenic bladder dysfunction are challenging because of their potential susceptibility to COVID-19 infection. All scheduled elective surgeries and

office visits were cancelled by many national health authorities.<sup>5</sup> As patients cannot be diagnosed with urodynamic evaluation or treated with invasive therapies like BTX-A, we have to devise alternative ways to keep patients safe and provide reassurance. During this unprecedented period, when there can be problems with patient safety due to the recommendation for deferring even minimally invasive surgery. The possible overlap of COVID-19 clinical syndrome with different conditions, such as urosepsis in neurourology patients, should be recognized and merits appropriate investigation. Regular follow-up with telemedicine or phone calls for preservation of continent status, avoidance of urinary tract infection, upper urinary tract safety, preservation of quality of life, and evaluation of economic and social circumstances should be considered. In high risk patients with maximum detrusor pressure greater than 40 cm H<sub>2</sub>O, low bladder compliance, risk of autonomic dysreflexia, recurrent urinary tract infections, and recent changes in the upper urinary tract, it is probably advisable to undertake intradetrusor BTX-A injections under local anesthesia where possible.<sup>6</sup> Though, this would be dependent on local protocols and the changing situation in the country.

## 5 | TECHNOLOGY-BASED TOOLS IN PANDEMIC: TELEMEDICINE, 3D PRINTING TECHNOLOGY, AI-BASED APPLICATIONS AND DIGITAL HEALTH

The use of modern technology by health care professionals is not only dependent on the availability of the technological services in a country but also related to cultural, economical, and social values. This results in varied utilization of technology from country to country during COVID-19 outbreak. However, a number of neurourology patients are young and tech savvy and keen to use various platforms to get more information regarding diagnosis and treatment of their condition. The health care professional should encourage the neurological patients to use technology to identify the urological problems and discuss with health care givers to formulate appropriate management strategies during this COVID-19 epidemic.

Telemedicine is the main technology-based tool to keep neurourological patients out of hospital environment. It is bridging the gap between people, physicians, and health systems, enabling everyone, especially symptomatic patients, to stay at home and communicate with physicians through virtual ways, helping to decrease the spread of the virus to populations and the medical staff

on the frontlines. For patients on medication, to continue the prescriptions, official software approved by local regulators will be helpful to the patients that need topping up of long-term medication.

Telemedicine use has increased 10-fold after the outbreak. However, it should be kept in mind that this enhanced usage of telemedicine for patient communication raises a number of medicolegal issues, concerns about informed consent, adherence to data protection and security law, and the technical support to run these systems. Some of these can be minimized by use of self-control system like Chatbot. This can help the patients in getting information about one's own situation by inputting the required data and following the computer-generated advice. The simplest telemedicine application is phone call or videoconference. It is recommended to use a licensed product and that would not only be reliable but would also have adequate safeguards for data protection. The appointments can be scheduled as routine but in place of face to face the patient would have a telephone consultation. In addition the physiotherapy and teaching session like self catheterization can be taught and monitored over video consultations.

We need to advise the patients for using artificial intelligence-based smartphone applications for prevention and follow-up for COVID-19. Giving instruction to the relatives of patients is the most important issue that we should take into account. On the other hand, 3D medical printing for production mask and shield, or small useful medical apparatus, is another technology-based solution for health care professionals.

COVID-19 can negatively effect to mental health of the population as people are forced to stay indoors for many days. In these trying times, digital health apps are providing help. On the other hand, with over 3 billion social media users worldwide, social media has a good tool outreach across all age groups.<sup>7</sup>

## 6 | SUMMARY

The aim is to keep our neurourological patients out of the hospital environment as much as possible. A significant proportion would be considered a high risk group in the current circumstances. However, we need to reassure them, probably with virtual clinics, that their urgent issues (as mentioned above) need to be dealt with in the most safe and effective manner. It would be imperative to follow the local protocols and guidelines in the ever changing fight against this pandemic so the management can be tailored to the individual needs in the context of local available resources. Telemedicine provides face to face communication better than phone calls providing

the evaluation of patient environment, patient physical status, and is also helpful for solving catheterization problems. Virtual channels, including contact tracing systems, wearables, and AI-based applications, should be used by patients to increase the awareness of COVID-19 risks.

## 7 | FUTURE DIRECTIONS

There is a lot of evidence<sup>8,9</sup> that the patients and health care physicians feel quite comfortable with the use of telemedicine, AI-based apps, and modern technology to deliver at least some aspects of health care. This is even more relevant for our neurourology patients who want to keep in touch with health care providers and want reassurance that they are safe but quite often do not want to make the long journey to the hospital with their complex needs.

It is envisaged that there will be a significant use of modern technology to communicate with neurourology patients even after the COVID-19 pandemic is over. Telemedicine will be used to evaluate the patients and carry out follow-up consultations. This can keep the most vulnerable patients out of the hospital and help to fast track patients that need to be seen for necessary investigations and offered appropriate treatment.

We wish the best to all our colleagues and patients.

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### REFERENCES

1. Ribal MJ, Cornford P, Briganti A, et al. 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. EAU Section Offices and the EAU Guidelines Panels [published online ahead of print April 27, 2020]. *Eur Urol*.

2. Musco S, Del Popolo G, Lamartina M, et al. Neuro-urology during the Covid-19 pandemic: triage and priority of treatments. [www.ics.org/neurourology/covid19/pandemic\\_triage\\_treatment](http://www.ics.org/neurourology/covid19/pandemic_triage_treatment)
3. [www.baus.org.uk/covid-19](http://www.baus.org.uk/covid-19)
4. [www.nice.org.uk/covid-19](http://www.nice.org.uk/covid-19)
5. Phé V, Karsenty G, Robert G, Gamé X, Cornu JN. Widespread postponement of functional urology cases during the COVID-19 pandemic: rationale, potential pitfalls, and future consequences [published online ahead of print April 23, 2020]. *Eur Urol*. <https://doi.org/10.1016/j.eururo.2020.04.031>
6. Joussain C, Popoff M, Phé V, et al. Long-term outcomes and risks factors for failure of intradetrusor onabotulinumtoxin A injections for the treatment of refractory neurogenic detrusor overactivity. *NeuroUrol Urodyn*. 2018;37:799-806.
7. Besko B, Dhunoo P Digital Health and the Fight Against Covid-19 Pandemic. The Medical Futurist Handbook. 2020.
8. Simonato A, Giannarini G, Abrate A, et al. Pathways for urology patients during the COVID-19 pandemic [published online ahead of print March 30, 2020]. *Minerva Urol Nefrol*. <https://doi.org/10.23736/S0393-2249.20.03861-8>
9. Katz EG, Stensland KS, Mandeville JA, et al. Triage office-based urologic procedures during the COVID-19 pandemic [published online ahead of print April 03, 2020]. *J Urol*. <https://doi.org/10.1097/JU.0000000000001034>

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