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Good urodynamic practice adaptations during the COVID-19 pandemic

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Abstract

Urodynamics testing forms the cornerstone of investigations when it comes to lower urinary tract dysfunction. It has to be done to the highest standards by following the International Continence Society Good Urodynamics Practice protocols. However, with the COVID-19 pandemic, certain adaptations to the urodynamics procedure need to be considered especially when it comes to quality control. This article aims to define these adaptations to help urodynamicists in their daily practice.

KEYWORDS

adaptations, COVID-19, International Continence Society, urodynamics

1 | INTRODUCTION

Urodynamics (UDS) forms the cornerstone investigation to assess the function and dysfunction of the lower urinary tract (LUT) and good urodynamics practice (GUP) guidelines have been published by the International Continence Society (ICS)[1,2] and the United Kingdom Continence Society.[3]

The spread of COVID-19 across the world has obviously affected the delivery of healthcare services. Female and functional urology (FFU) has probably been the hardest hit subspeciality in urology with massive cut down (Figure 1) in outpatient urological investigations and procedures and urological operations.[4] Most, if not all, guidelines have categorized FFU procedures into low priority with possibility of delaying such procedures beyond 3 months[5-7] unless there is an infected prosthetic device causing individuals to become unwell. Healthcare professionals have also been redeployed to help in other services and maintaining emergency care for COVID-19 patients.

To that effect, several guidelines have been published prioritizing surgeries and suggested converting face-to-face consultations to telephone or video consultations to reduce person-to-person contact.[8] However, none of these guidelines cater for adaptations of an invasive UDS test during the COVID-19 pandemic which obviously involves coming into close contact with patients and patients coughing during the investigation to check for quality control or effort/stress leakage. Below we describe the adaptations necessary in an UDS investigation during the COVID-19 pandemic to reduce the risk of infection to patients and urodynamicists while maintaining GUP.

2 | ADAPTATIONS OF PRIORITISING UDS TESTING

It is reasonable to suppose that in several centers the availability of UDS services (in terms of human resources, offices availability, and reduction of the executable examinations per day, due to social distancing) will

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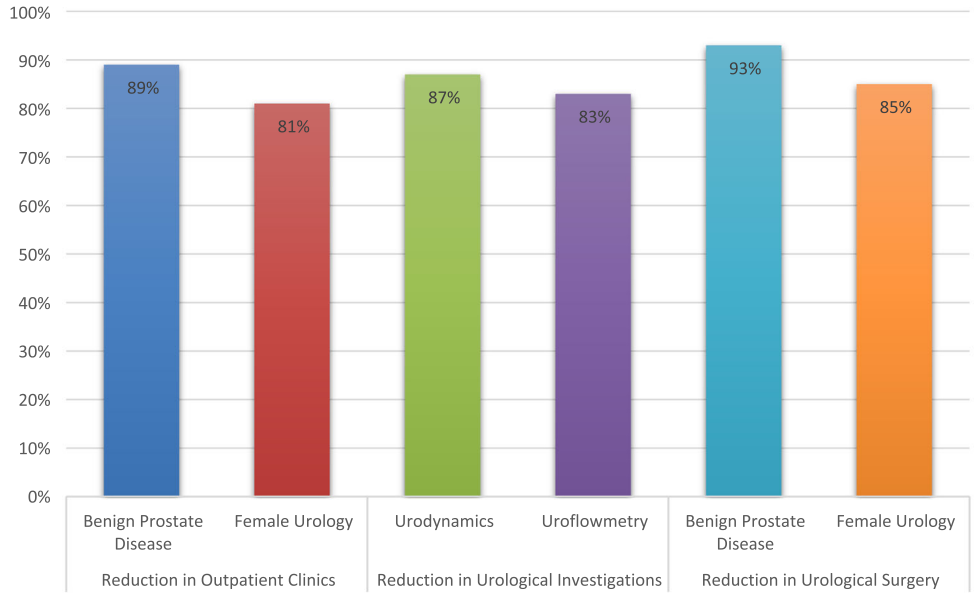


FIGURE 1 Overall percentage reduction in female and functional urology activity worldwide

be reduced while the pandemic subsides. In this case, centers should consider different priorities for different cases. The priority criteria used for surgical procedures (Table 1) could also be used to prioritize urodynamic studies.[9] The main considerations would be whether performing the UDS test would alter the current treatment of the patient and also when after the UDS test will an operation be performed. There are no P1 (Emergency/Urgent) priority indications for invasive UDS that we have identified.

2.1 | High priority (P2)

Neurogenic patients at risk for upper urinary tract deterioration (eg, spinal cord injury or spinal dysraphism patients and some multiple sclerosis patients[10-12]) should be given the higher priority.[12] Same priority may be given to patients with suspected poor compliance (eg, affected by radio-cystitis) in which a urinary diversion or bladder augmentation is or could be planned as a P2 priority or those due for a kidney transplant.

If UDS is considered necessary or useful in patients waiting for second stage surgery for sacral neuromodulation (eg, implant of the pulse generator) then they should be investigated as soon as possible before the surgical procedure and ideally within 4 weeks of the advanced tined lead implant.

TABLE 1 Prioritization of urological procedures

Priority level (P)	Type	Timing of operation/procedure
P1a	Emergency	Needed within 24 h
P1b	Urgent	Needed with 72 h
P2	High	Can be deferred up to 4 wk
P3	Intermediate	Can be delayed for up to 3 mo
P4	Low	Can be delayed for more than 3 mo

2.2 | Intermediate priority (P3)

Male patients with benign prostatic obstruction have low priority for surgery unless they have an indwelling urinary catheter which is getting blocked with calcifications or needing regular changes; in this case, urodynamic investigation, if indicated, should be performed just before the surgical procedure which needs to be planned as soon as possible after the acute phase of the pandemic.[5,12] These patients may be considered in the intermediate priority group, thus not to be postponed more than 3 to 4 months. The same priority may be given to female patients with pelvic organ prolapse and hydronephrosis or vaginal ulcers.

2.3 | Low priority (P4)

All other indications for urodynamic investigation (overactive bladder, urgency or stress urinary incontinence, male

LUTS, neurogenic bladder without risk for the upper urinary tract) may be given a low priority.

3 | ADAPTATIONS PRIOR TO UDS TESTING

3.1 | Patient risk assessment

When deliberating the order of patient bookings, a basic risk assessment may be beneficial. Clinical need is the priority (as above), but subsequent to this there should be a consideration of patient risk. An assessment based on reported risk criteria[13] may allow departments to identify low, moderate, and high-risk patients. The latter of which requires careful consideration and elevated levels of COVID-19 risk management.

3.2 | Preurodynamic appointment

Departmental variation is common for urodynamic procedures, but for those who perform an in-depth patient history, it is recommended that this is conducted via a telephone consultation before the hospital-based appointment. This ensures that exposure time is minimized for both staff and patients.

A comprehensive patient history should also ensure the appropriateness of the referral, guaranteeing patient appointments are well utilized. On consultation, it is also advisable to outline the precautions the department is taking to reduce the COVID-19 risk; allowing patients the opportunity to postpone investigations should they wish.

3.3 | Number of cases

In accordance with Public Health England guidance,[14] urodynamic tests are not considered to be aerosol-generating procedures. As such, there is no current need for full air change in the room and thus no regulations pertaining to the period of time between patients. This said, there are a number of factors which will dictate the volume of patients that are seen safely. These include sufficient time to perform an intensive room clean as agreed by local infection control, as well as the overall volume of patients within waiting areas and transiting corridors, where 2 m distancing is problematic. The risk of patients crossing in confined areas can be mitigated by introducing one-way systems. However, it is important to be mindful of patients' mobility and the distance they are requested to walk especially from reception to the UDS suite.

3.4 | Route into the department

Independent travel to the hospital should be encouraged, with patients using personal forms of transport rather than public transport where possible. Upon arrival at the department, they should be promptly collected from general waiting areas and escorted to a Personal Protective Equipment (PPE) station, where they can be assessed in private. Current symptoms (fever, new-onset cough, loss of taste/smell etc) can be enquired about (see GOV.UK for up to date symptom list), patient temperature performed (>37.8°C need to be rebooked), and basic preventative measures such as hand-gel and face masks can be administered. Staff should be encouraged to take responsibility for their own safety and PPE outside of the clinical rooms. Face masks may be an appropriate measure, but local agreement on the use of PPE is recommended. Patients should be escorted in and out of the department in a timely fashion, ensuring their hospital visit is as short as possible. The UK government has now suggested that anyone going into hospital, including staff, should use a face covering.

4 | ADAPTATIONS DURING UDS TESTING

Guidelines for preventing infection transmission carried by airborne or surface droplets will clearly have an impact on urodynamic procedures.

4.1 | Personal protective equipment

In addition to the normal use of single-use gloves and aprons by the urodynamicist, single-use surgical face masks are recommended for both patients and staff.[15] Given that body fluids, contact and coughs are conducted in UDS procedures, eye protection in the form of a face visor is also recommended.[15] Standard UDS clinic rooms are acceptable, since negative pressure rooms are not required and positive pressure rooms are not recommended,[15] however a period for cleaning the room is needed between each patient. There is no need for patients to wear gloves as per advice from infection control staff but patients will either use hand-gel or wash their hands for 20 seconds before entering and leaving the UDS room. We recommend that local and national guidelines are adhered to with regard to PPE.

4.2 | Physical distance

Wherever possible, a distance of 2 m should be maintained between staff and patient. Clearly, for procedures

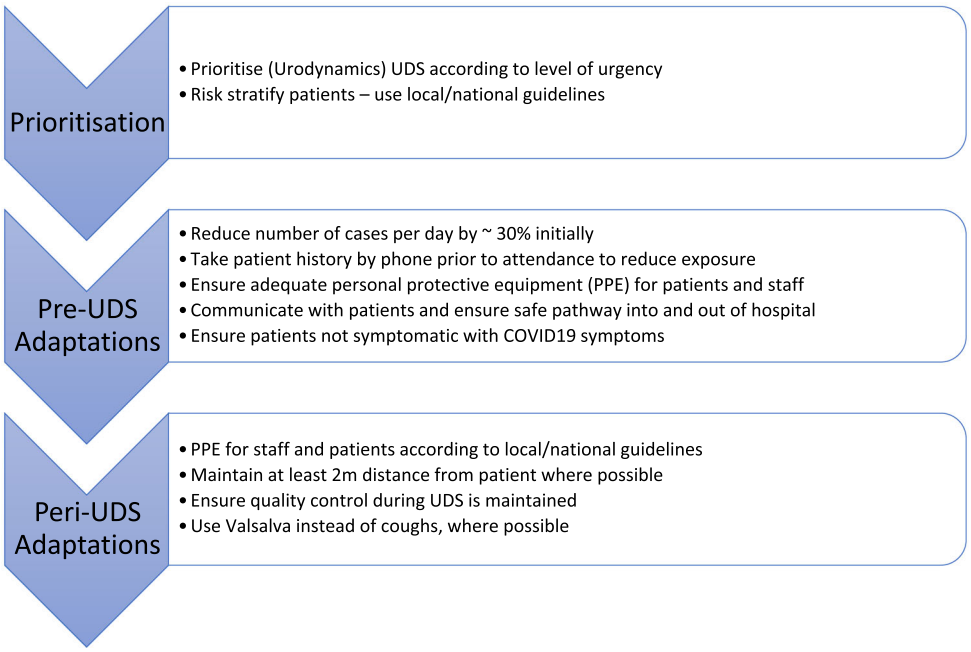


FIGURE 2 Summary of adaptations for urodynamic testing

such as catheterization and examination of the patient this is impossible. Precautions must, therefore, be taken in the form of PPE as above and adjusting elements of the test to allow observation from a distance of at least 2 m. Where urinary leakage needs to be observed, especially in women, the patient should be asked to stand or squat over a pad on the floor, rather than sit on the flow-meter, in order that leakage can be seen from further away. During video UDS, fluoroscopic screening can provide evidence of urethral leakage and will be sufficient for a diagnosis of urodynamic stress incontinence (USI).

4.3 | Coughing and Valsalva

A key test for signal quality and for USI is coughing by the patient. As this will result in airborne particles being generated, coughing should be kept to an absolute minimum and always with a mask in place. Quality control can be carried out effectively by a Valsalva manoeuvre[16] or even by gentle external pressure on the abdomen by the patient, thus coughing is not needed in this case. For stress testing, again a Valsalva manoeuvre or other physical provocations can be attempted first, and only then if required, the patient be asked to cough. In that case, the cough must be directed away from others in the room and shielded by an elbow or by a handheld tissue that is then discarded, since the mask itself must not be touched during use.[15] The patient is then given a hand-gel to use. For the same reason, if the patient is unable to push against a closed glottis to perform a Valsalva, they can again use a tissue over the mask to close their nose and mouth while raising lung pressure.

5 | CONCLUSION

Urodynamic tests are crucial diagnostic tests in FFU. It is, therefore, imperative that these tests are carried out according to the ICS GUP guidelines. However, in view of the COVID-19 pandemic, certain adaptations need to be followed to maintain good quality testing and obtaining meaningful results (Figure 2).

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