


A Comparison of UK versus European guidelines in neuro-urology

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Hazel Ecclestone¹ and Rizwan Hamid²

Abstract

Two primary guidelines, written by the European Association of Urology (EAU) and National Institute of Clinical Excellence (NICE), have been designed to aid British urologists with managing neuro-urological patients. The EAU guidelines are updated annually, and cover incontinence, sexual function and infertility in the adult neuropathic population. The NICE guidelines, applicable to England, are periodically updated, with the last update being in 2012. The NICE guideline covers adults and children with neurological incontinence. There are fundamental differences in the recommendations of the panels. EAU advocate upfront urodynamics and ultrasound assessment in all patients and treatment recommendations are based on urodynamic findings rather than patient symptoms on which the NICE guidelines are based. The patient group covered comprises a heterogeneous population, including patients at high risk of renal deterioration without urological intervention. Due to this, both guidelines recommend initial risk stratification to determine assessment and follow-up regimens. The reason for variation may be due to the NICE guidelines having an added dimension, in that they ensure all interventions are cost effective for a publicly funded national health service. Both guideline panels acknowledge the paucity of scientific research in the field of neuro-urology and consequently both guidelines are based upon expert opinion and limited retrospective evidence. There is an urgent need to undertake prospective research in this field. A first step can be an establishment of prospective registries among various neuro-urological units.

Keywords

Comparison, evidence, guidelines, neuro-urology, surveillance

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Background

Two primary guidelines aim to advise practicing British urologists manage patients with neuro-urological disorders. The National Institute for Clinical Excellence (NICE) produce national guidance on a wide range of topics including the 2012 published CG148 guideline entitled Urinary Incontinence in Neurological Disease.¹ This guideline is officially only for England, and covers adults and children with neuro-urological disorders. The second guideline available to United Kingdom (UK) urologists is the European Association of Urology (EAU) guidelines on neuro-urology, which are updated annually.² In addition, a group of neuro-urologists from the UK published ‘a proposed guidelines for the urological management of patients’.³ However, this was specific for patients with spinal cord injury only.

These sources, however, do not always agree in their recommendations, and this review article seeks to identify differences and similarities as well as speculating as to why these differences exist in a seemingly homogenous population. The NICE and EAU provide guidance for all

¹Northwick Park Hospital, UK

²London Spinal Injuries Unit, Stanmore & University College London Hospitals, UK

Corresponding author:

Rizwan Hamid, London Spinal Injuries Unit, Stanmore & University College London Hospitals, Department of Urology, 235 Euston Road, London NW1 2PG, UK.

Email: hamid_rizwan@hotmail.com

Table 1. Initial assessment recommendations.

| Initial assessment | | |
|-----------------------------|---|---|
| | Common features | Areas that differ |
| History taking | Both stress the importance of taking a thorough history, including bowel and sexual history along with a holistic look at patients functional capacity (e.g. hand function, cognition and mobility.) | EAU state a formal assessment of quality of life should be performed. (well-conducted trials support their use for evaluating effectiveness of therapies) |
| | Both recommend a bladder diary, with NICE specifying it should be for at least three days. EAU recognise there is no evidence to support their use in this population, but nevertheless recommend one is performed. | |
| Physical examination | Both suggest the clinician should aim to provide as complete a description of the patients neurology as possible including lumbar and sacral function | NICE recommend a complete physical examination including blood pressure and abdominal examination. |
| Bedside tests | Both advise that urinalysis is performed; furthermore, NICE suggest starting treatment only if the patient has symptoms of an infection. | |
| | If a patient is able to void spontaneously both guidelines advocate the measurement of a urinary flow rate. | |
| | Both recommend the measurement of post-void residual volumes on multiple occasions. | |
| Other | The two guidelines also detail 'red flag' symptoms to which the clinician should refer for urgent investigation (e.g. haematuria or recurrent infections). | |

NICE: National Institute of Clinical Excellence; EAU: European Association of Urology.

neurological conditions and hence these are primarily compared in this review.

The Guidelines overview

The guidelines have several sections in common. Both comment on optimal assessment, management and follow-up of patients with neurological lower urinary tract (LUT) dysfunction. The EAU guidelines cover a slightly broader scope, looking also at sexual function and fertility, with recommendations being limited to the adult population. The NICE guidelines are applicable both to adult and paediatric populations.

Scope of the guidelines

The EAU guidelines define quite comprehensively the type of neurological conditions which may give rise to neuro-urological symptoms as well as identifying the type of bladder dysfunction one would expect to see with disorders at various levels. The NICE guidelines give examples of neurological conditions that can affect the function of the LUT, but focus on the likelihood that these diseases

will progress or remain stable rather than the predicted effects on LUT function.

The tables 1–4 highlight areas of agreement and discord in the guidelines, under common subheadings (assessment, treatment and surveillance).

Both guideline panels have identified the paucity of literature regarding the benefits of assessment of the urinary tract in patients with neurological lower urinary tract dysfunction (NLUTD). The above recommendations (Table 1) are based on expert opinion. In addition NICE also considered the economic impact, judging the above assessments to be cost effective.

Both guidelines' recommendations are based on expert panel consensus rather than high-grade available evidence. EAU argue video-urodynamics are mandatory in all patients, including those with multiple sclerosis (MS), as it helps formulate management plans, whereas NICE feel that due to limited evidence and high cost of urodynamic investigations, it is not cost effective to offer urodynamics or ultrasound to all patients, and feel risk stratification by clinicians is the best way to balance potential risk against cost (Table 2).

The recommended urinary tract surveillance protocols are the area where there is the greatest discord in the two

Table 2. Imaging and investigation recommendations.

| Imaging and investigations | | |
|----------------------------|-----------------|---|
| | Common features | Areas that differ |
| Ultrasound | | NICE: consider in patients at high risk of renal deterioration (e.g. SB or SCI) EAU: Panel consensus that it is mandatory in all neuropaths |
| Urodynamics (UDS) | | NICE: Do not offer UDS routinely to those with low risk of renal deterioration (e.g. most people with MS). Offer VUDS to those with high risk of renal complications. offer UDS prior to surgery for neurogenic LUTS EAU: Urodynamics should be performed in all neuro-urological patients, with VUDS being the gold standard. |

LUTS: lower urinary tract symptoms; MS: multiple sclerosis; SCI: spinal cord injury; SB: spina bifida; UDS: urodynamics; VUDS: video-urodynamics; NICE: National Institute of Clinical Excellence; EAU: European Association of Urology.

Table 3. Treatment recommendations for patients with neuro-urological disorders.

| Treatment | | |
|------------------------------|---|--|
| | Common features | Areas that differ |
| Conservative | | NICE: Suggest PFMT if able, as well as habit/bladder retraining. EAU: Do not advocate assisted bladder emptying, no comment on PFMT. |
| Medical management | | Anticholinergics: NICE: Offer if spinal cord disease and OAB symptoms, consider if brain disease and OAB symptoms (i.e. based on symptoms alone). EAU: Anticholinergics are first line medical treatment in all patients with NDO (i.e. based on UDS findings). |
| | | Alpha blockers: NICE: Do not offer alpha blockers for incomplete emptying EAU: Offer alpha-blockers to decrease bladder outlet resistance. |
| Minimally invasive treatment | Both agree intermittent catheterisation is preferable to indwelling catheters where possible. | Botox: NICE: Offer to adults with spinal cord disease who have failed anticholinergics for symptoms of OAB (i.e. based on symptoms). Consider Botox in children with the same. EAU: Botox is the most effective minimally invasive treatment for NDO. |
| Surgery | Slings: Autologous fascial slings are preferable to artificial slings due to the risk of erosion; however, EAU accept that synthetic slings are emerging in the literature as a safe alternative to autologous slings. | Augmentation cystoplasty: NICE: a valid option in those with refractory NLUTD with complications (such as hydronephrosis or incontinence) if the patient has a non-progressive neurological condition. EAU: Consider in all who have failed to respond to conservative treatment in order to increase capacity and reduce bladder pressures. |
| | AUS: Both agree it is an acceptable option to treat incontinence providing urinary storage is adequate and safe. | Urinary diversion: NICE: Urostomy is an option for patients with intractable symptoms such as renal deterioration or incontinence and a simultaneous cystectomy should be considered EAU: Continent diversions should be the first choice for urinary diversion, with incontinent diversions reserved for those who cannot catheterise. |

AUS: artificial urinary sphincter; NDO: neurogenic detrusor overactivity; OAB: overactive bladder; PFMT: pelvic floor muscle training; UDS: urodynamic studies; NICE: National Institute of Clinical Excellence; EAU: European Association of Urology.

Table 4. Surveillance protocol recommendations.

| Surveillance | | |
|----------------------------|---|--|
| | NICE | EAU |
| High-risk patients | Lifelong follow-up. (Clinical review interval not stated.) US every one to two years. UDS – consider surveillance regimen. Do not rely on serum creatinine to monitor renal function. | Lifelong follow-up. Clinical review annually. US at least once every six months. UDS – mandatory baseline investigation and should be performed at regular intervals. Perform regular urinalysis. Annual blood chemistry. |
| Lower-risk patients | Lifelong follow-up and ongoing risk stratification (see below). If a patient becomes high risk – for surveillance as above. | Lifelong follow-up. Follow-up at least every two years. Regular urinalysis. Significant clinical change should prompt urgent intervention. |

US: ultrasound; UDS: urodynamic studies; NICE: National Institute of Clinical Excellence; EAU: European Association of Urology.

guidelines (Table 4). Both guidelines advocate risk stratification, but it is worth noting that NICE give example disorders of what they consider high-risk conditions (spinal cord injury, anorectal malformation and spina bifida) whereas EAU invite clinicians to perform their own risk stratification based on the underlying pathology and current symptoms.

In the full guideline,¹ NICE go on to further define high and low risk of renal deterioration. High risk is defined as at least one definite risk factor or more than two probable risk factors. These risk factors are as follows:

Definite risk factors:

- MS duration beyond 15 years,
- Indwelling urinary catheter,
- High detrusor pressure,
- Ample uninhibited contractions of the detrusor.

Probable risk factors:

- Detrusor-sphincter dyssynergia,
- Age over 50 years,
- Male sex.

Furthermore, patients should be moved from low risk to high risk in the case of:

- New-onset hydronephrosis,
- Febrile urinary tract infection,
- Evidence of urine retention.

Discussion

The consequences of untreated neuro-urological disorders are potentially catastrophic. Life expectancy of some neuro-urology patients prior to successful interventions was

previously drastically reduced; a child born with spina bifida between 1956 and 1962 had a 12% chance of surviving to their 13th birthday,⁴ and of those that survived infancy, the biggest killer was renal failure due to inadequate bladder management. Recent improvements in bladder management mean that these statistics are no longer the norm; however, 13% of patients with spinal cord injury still die as a consequence of urogenital disease.⁵ Furthermore, we now know that symptoms and long-term complications in this population are not clearly correlated,⁶ making regular follow-up a necessity.

Neuro-urological disorders are relatively rare, and make up a minority of most general urologists' practice. In addition, literature regarding neuro-urological patients is relatively sparse and often of poor quality,¹⁻³ and the available guidelines are a reflection of this.

It is intriguing to note that there are considerable differences between the two sets of guidelines for this small group of patients. The expert panels that devise these guidelines have a slightly different scope.^{1,2} As mentioned previously, there is very little high-quality research in the field of neuro-urology and therefore most guidance is based on retrospective studies and expert opinion. The EAU guidelines group comprises urologists and is applicable to a wide range of countries that have different healthcare systems. The NICE guideline development group consists of adult and paediatric urologists, specialist nurses, general practitioners and patients. Both guidelines aim to propose an optimal management algorithm for neuro-urological patients that prevents morbidity and reduces mortality, but avoid unnecessary tests and treatment. NICE, working within the constraint of a publicly funded National Health Service (NHS) have to also employ a degree of rationing, ensuring all interventions are cost effective.⁷

The major divergences in the two guidelines are likely due to these differences in composition in guideline panels

along with somewhat different scope of the guideline audience, especially the economic impact of the recommendations in case of NICE. The panels adopt almost identical initial assessment recommendations, suggesting this protocol is currently the safest and most cost effective. The use of more costly imaging modalities illustrates a difference between the panels which may indicate difference in economic rationales. NICE advise the use of ultrasound only in those patients identified as high risk for renal deterioration whereas the EAU guidelines state that all neuro-pathic patients should have a baseline ultrasound – which may reflect the paucity of high-level evidence and a greater concern of missing potential renal deterioration. The NICE guidelines are more conservative again when it comes to urodynamic investigations, leaving it to the clinician to decide who is at high risk and thus require urodynamics. Interestingly, three of the seven risk factors for renal deterioration cited by NICE are urodynamic findings, which indicates a clinician cannot fully risk assess whether a patient is ‘high risk’ and thus requires urodynamics, unless they have had urodynamics.

When it comes to treatment, EAU is once again less conservative than NICE. EAU recommends both anticholinergics and Botox to any patient that has neurogenic detrusor overactivity (NDO) on urodynamics, whereas NICE do not advocate upfront urodynamics and instead suggest treatment based on symptoms and in a stepwise manner. It certainly appears that the costs associated with surgery have also been taken into consideration in the NICE guidelines with major reconstruction recommended only for patients who do not have progressive neurological disorders (Table 3). Meanwhile, EAU advocate reconstructive surgery in any suitable neuro-urology patient ‘whenever more conservative approaches have failed’.¹

The follow-up regimen is where the two guidelines diverge to the greatest extent. Both guideline groups advocate lifelong follow-up, but the intervals at which this occurs varies between the guidelines between six months² and two years¹ in high-risk patients. These recommendations were based on expert opinions and are likely to reflect the variation in practice in different countries due to the lack of robust data to back up either position.

Conclusion

A British urologist has a number of resources available to aid with the management of neuropathic patients. These primarily include NICE and EAU guidelines for neuro-urological patients. They cover broadly the same topics with regards to assessment, investigation and management in this group of patients. However, there are some important differences between their recommendations. The inclusion of ‘cost effectiveness’ as a key factor in the NICE guidelines generates a more conservative approach to management than the proposed guidelines by the EAU. EAU recommend

more investigations at increased frequencies than NICE, in addition to stipulating fewer restrictions on treatment options. Furthermore, the EAU guidelines cover a broader range of neuro-urological issues including sexual dysfunction and fertility that are not within the scope of the NICE guidance. Of significance is that the majority of both guidelines are based upon low level evidence and expert opinion rather than Level 1 evidence. As such, until more robust data are available in the field of neuro-urology, it is likely there will continue to be a significant divergence between national and international guidelines based on variations in clinical practice and economic considerations.

Unsurprisingly, everyone is in agreement that the literature in this particular area is not only retrospective but is of poor scientific quality.

We strongly feel that there is an urgent need to undertake prospective research in this field. Randomised controlled trials will ethically and logistically be difficult to conduct; however, well-designed prospective multicentre cohort studies with clear predefined outcomes are warranted. A first step can be an establishment of prospective registries among various neuro-urological units.

Conflicting interests

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Contributorship

HE and RH researched literature. HE wrote the first draft of the manuscript. Both authors reviewed and edited the manuscript and approved the final version of the manuscript.

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