



Management of the Complex Neurogenic Bladder Patient: avoiding and troubleshooting complications.

W30, 30 August 2011 09:00 - 12:00

Start	End	Topic	Speakers
09:00	09:05	Introduction	<ul style="list-style-type: none"> • Anthony Stone
09:05	09:20	Recurrent infection/uroolithiasis	<ul style="list-style-type: none"> • John Lavelle
09:20	09:40	Intractable detrusor overactivity	<ul style="list-style-type: none"> • R. Corey O'Connor
09:40	10:00	Sphincter weakness/devastated urethra	<ul style="list-style-type: none"> • Julian Shah
10:00	10:15	Catheterization difficulties	<ul style="list-style-type: none"> • Michael Guralnick
10:15	10:30	Discussion	All
10:30	11:00	Break	None
11:00	11:15	Complications of surgery: augmentation cystoplasty	<ul style="list-style-type: none"> • R. Corey O'Connor
11:15	11:30	Complications of surgery: Mitrofanoff/continent stomas	<ul style="list-style-type: none"> • Julian Shah
11:30	11:45	Complications of surgery: suprapubic catheter	<ul style="list-style-type: none"> • John Lavelle
11:45	12:00	Discussion	All

Aims of course/workshop

Using a combination of didactic talks, panel discussions and audience interaction, this course will discuss the management of the complex and complicated neurogenic patient. Topics will include recurrent infection, intractable detrusor overactivity, sphincter weakness, devastated urethra, catheterisation difficulties and urolithiasis. Complications related to surgical management including augmentation cystoplasty, Mitrofanoff procedures, and suprapubic catheter will be discussed. The participants will have the opportunity to formulate management algorithms based on the experience and knowledge of the faculty. Additionally they will understand how to avoid complications and how to treat them effectively when they are encountered.

Educational Objectives

This workshop covers areas of neurogenic bladder management that are rarely discussed adequately in the didactic literature. It will provide a forum for the experienced faculty to share their knowledge of these complex problems with the participants. As this is an advanced course it is expected that discussions among the faculty and audience will allow the development of consensus in these management issues.

Patients with neurologic disease with associated vesico-urethral dysfunction present many challenges to their caregivers. The primary consideration is improving the individuals' quality of life. In doing this the clinician must take into consideration multiple factors. Obviously the primary neurologic diagnosis and the severity and progression of the condition are highly significant. However, age, mobility, hand function, home circumstance and support, mental status, BMI, and social factors are some of the other factors that need to be considered. In many instances applying a management algorithm to an individual patient is impossible, with treatment often tailored to the individual. Similarly, studies with Level 1 evidence for common treatment modalities in these patients are rare, if not totally lacking.

The purpose of this workshop is to review common concerns in management of the neurogenic patient, with a view to understanding how to manage these complex situations. Emphasis will be given to avoiding and managing complications. These problems will be illustrated by case histories in order to stimulate discussion among the faculty and involve the participants. It is hoped that this discussion will educate the participants on the best management with the least complications.

Each of the broad areas to be discussed will be described below with a list of talking points and a relevant bibliography. It will be noted that there is considerable overlap between these areas and the cases discussed will by their nature, illustrate several of the areas in each case.

1. Recurrent urinary tract infection:

- a. How to monitor, surveillance v. symptoms
- b. Associated catheter management
 - i. CIC (sterile v. clean) v indwelling (urethral v. suprapubic)
- c. Antibiotics: therapeutic v. prophylaxis
- d. Irrigation + or -, which solution
- e. Upper tract changes: scarring, calcification, how to treat

Bibliography:

- i. Khan AA, Mathur S, Feneley R, Timoney AG. Developing a strategy to reduce the high morbidity of patients with long-term urinary catheters: the BioMed catheter research clinic. *BJU Int.* 2007 Dec;100(6):1298-301.
- ii. Waites KB, Canupp KC, Roper JF, Camp SM, Chen Y. Evaluation of 3 methods of bladder irrigation to treat bacteriuria in persons with neurogenic bladder. *J Spinal Cord Med.* 2006;29(3):217-26.
- iii. Sinclair L, Hagen S, Cross S. Washout policies in long-term indwelling urinary catheterization in adults: A short version Cochrane review. *Neurourol Urodyn.* 2011 May 11.
- iv. Cardenas DD, Moore KN, Dannels-McClure A, Scelza WM, Graves DE, Brooks M, Busch AK. Intermittent catheterization with a hydrophilic-coated catheter delays urinary

tract infections in acute spinal cord injury: a prospective, randomized, multicenter trial. PM R. 2011 May;3(5):408-17.

2. Urolithiasis

- a. Surveillance: Ultrasound v. xray v cystoscopy
- b. Prevention (see above)
- c. Management: endoscopic v. open
- d. Which lithopaxy modality
- e. Influence on bladder management

Bibliography:

- i. Ost MC, Lee BR. Urolithiasis in patients with spinal cord injuries: risk factor management, and outcomes. Curr Opin Urol. 2006 Mar;16(2):93-9.
- ii. Linsenmeyer MA, Linsenmeyer TA. Accuracy of predicting bladder stones based on catheter encrustation in individuals with spinal cord injury. J Spinal Cord Med. 2006;29(4):402-5.

3. Detrusor overactivity

- a. Best pharmacologic management
- b. Botox regimes, improving efficacy
- c. Indication for enterocystoplasty
- d. Cystoplasty techniques, associated procedures
- e. Avoiding cystoplasty problems
- f. Is there a place for neuromodulation/neurostimulation

Bibliography:

- i. Watanabe JH, Campbell JD, Ravelo A, Chancellor MB, Kowalski J, Sullivan SD, Cost analysis of interventions for antimuscarinic refractory patients with overactive bladder. Urology. 2010 Oct;76(4):835-40.
- ii. Grise P, Ruffion A, Denys P, Egon G, Chartier Kastler E. Efficacy and tolerability of botulinum toxin type A in patients with neurogenic detrusor overactivity and without concomitant anticholinergic therapy: comparison of two doses. Eur Urol. 2010 Nov;58(5):759-66.

iii. Herschorn S, Gajewski J, Ethans K, Corcos J, Carlson K, Bailly G, Bard R, Valiquette L, Baverstock R, Carr L, Radomski S. Efficacy of botulinum toxin a injection for neurogenic detrusor overactivity and urinary incontinence: a randomized, double-blind trial. *J Urol*. 2011 Jun;185(6):2229-35.

iv. Padmanabhan P, Scarpero HM, Milam DF, Dmochowski RR, Penson DF. Five-year cost analysis of intra-detrusor injection of botulinum toxin type A and augmentation cystoplasty for refractory neurogenic detrusor overactivity. *World J Urol*. 2011 Feb;29(1):51-7.

4. Incompetant bladder outlet

- a. Prevention
- b. Management options: bulking, sling, artificial sphincter, bladder neck reconstruction,
- c. bladder neck/urethral closure, suprapubic diversion

Bibliography:

i. Chartier Kastler E, Genevois S, Gamé X, Denys P, Richard F, Leriche A, Saramon JP, Ruffion A. Treatment of neurogenic male urinary incontinence related to intrinsic sphincter insufficiency with an artificial urinary sphincter: a French retrospective multicentre study. *BJU Int*. 2011 Feb;107(3):426-32.

ii. Castellan M, Gosalbez R, Labbie A, Ibrahim E, Disandro M. Bladder neck sling for treatment of neurogenic incontinence in children with augmentation cystoplasty: long-term followup. *J Urol*. 2005 Jun;173(6):2128-31

iii. O'Connor RC, Stapp EC, Donnellan SM, Hovey RM, Tse VW, Stone AR. Long-term results of suprapubic bladder neck closure for treatment of the devastated outlet. *Urology*. 2005 Aug;66(2):311-5.

iv. Stoffel JT, McGuire EJ. Outcome of urethral closure in patients with neurologic impairment and complete urethral destruction. *Neurourol Urodyn* 2006;25(1):19-22.

5. Intermittent catheterization

- a. Teaching
- b. Trouble shooting: associated infection, persistent leakage etc
- c. Indications for catheterizable stoma v suprapubic catheter v. suprapubic diversion

Bibliography:

i. Moore KN, Fader M, Getliffe K. Long-term bladder management by intermittent catheterisati in adults and children. *Cochrane Database Syst Rev*. 2007 Oct 17;(4):CD006008

ii. Getliffe K, Fader M, Allen C, Pinar K, Moore KN. Current evidence on intermittent catheterization: sterile single-use catheters or clean reused catheters and the incidence of UTI. *J Wound Ostomy Continence Nurs.* 2007 May-Jun;34(3):289-96.

iii. Newman DK, Willson MM. Review of intermittent catheterization and current best practices. *Urol Nurs.* 2011 Jan-Feb;31(1):12-28,

6. Augmentation cystoplasty

- a. Which segment, postop management
- b. Problems: infection, stones, mucus, perforation, malignant change
- c. Enterocystoplasty v. alternatives
- d. Best surveillance options

Bibliography:

i. Wiener JS, Antonelli J, Shea AM, Curtis LH, Schulman KA, Krupski TL, Scales CD Jr. Bladder Augmentation Versus Urinary Diversion in Patients With Spina Bifida in the United States. *J Urol.* 2011 May 14.

ii. Higuchi TT, Granberg CF, Fox JA, Husmann DA. Augmentation cystoplasty and risk of neoplasia: fact, fiction and controversy. *J Urol.* 2010 Dec;184(6):2492-6.

iii. Rasmussen NT, Guralnick ML, O'Connor RC. Successful use of sacral neuromodulation after failed bladder augmentation. *Can Urol Assoc J.* 2009 Oct;3(5):E49-50.

iv. Soygur T, Burgu B, Zümrütbas A, Süer E. The need for ureteric re-implantation during augmentation cystoplasty: video-urodynamic evaluation. *BJU Int.* 2010 Feb;105(4):530-2

v. Hamid R, Greenwell TJ, Nethercliffe JM, Freeman A, Venn SN, Woodhouse CR. Routine surveillance cystoscopy for patients with augmentation and substitution cystoplasty for benign urological conditions: is it necessary? *BJU Int.* 2009 Aug;104(3):392-5.

vi. Guven A, Onal B, Kogan BA. Spontaneous bladder perforations following augmentation cystoplasty in children. *Nat Clin Pract Urol.* 2006 Nov;3(11):584-5.

7. Continent catheterizable stomas

- a. Indications
- b. Technical considerations: which tube, implant techniques, associated procedures
- c. Stenosis, recurrent incontinence, catheterization difficulties

Bibliography:

- i. Leslie B, Lorenzo AJ, Moore K, Farhat WA, Bägli DJ, Pippi Salle JL. Long-term followup and time to event outcome analysis of continent catheterizable channels. *J Urol*. 2011 Jun;185(6):2298-302.
- ii. Farrugia MK, Malone PS. Educational article: The Mitrofanoff procedure. *J Pediatr Urol*. 2010 Aug;6(4):330-7.
- iii. Piaggio L, Myers S, Figueroa TE, Barthold JS, González R. Influence of type of conduit and site of implantation on the outcome of continent catheterizable channels. *J Pediatr Urol*. 2007 Jun;3(3):230-4.
- iv. Merenda LA, Duffy T, Betz RR, Mulcahey MJ, Dean G, Pontari M. Outcomes of urinary diversion in children with spinal cord injuries. *J Spinal Cord Med*. 2007;30 Suppl 1:S41-7

8. Suprapubic catheter/ incontinent diversion

- a. Open v. percutaneous
- b. Catheter size and type
- c. Long term management: change interval, irrigation +/-, antimuscarinics, bacteriuria, surveillance, cystoscopy/xray
- d. Long term problems: track erosion, recurrent incontinence, upper tract changes, stones, infection
- e. Alternatives: ileovesicostomy v. suprapubic conduit
 - i. +/- cystectomy
 - ii. Pyocystis: prevention, management

Bibliography:

- i. Sugimura T, Arnold E, English S, Moore J. Chronic suprapubic catheterization in the management of patients with spinal cord injuries: analysis of upper and lower urinary tract complications. *BJU Int.* 2008 Jun;101(11):1396-400.
- ii. Feifer A, Corcos J. Contemporary role of suprapubic cystostomy in treatment of neuropathic bladder dysfunction in spinal cord injured patients. *Neurourol Urodyn.* 2008;27(6):475-9.
- iii. Katsumi HK, Kalisvaart JF, Ronningen LD, Hovey RM. Urethral versus suprapubic catheter: choosing the best bladder management for male spinal cord injury patients with indwelling catheters. *Spinal Cord.* 2010 Apr;48(4):32
- iv. Hellenthal NJ, Short SS, O'Connor RC, Eandi JA, Yap SA, Stone AR. Incontinent ileovesicostomy: Long-term outcomes and complications. *Neurourol Urodyn.* 2009;28(6):483-6. 5