

Research Highlights

Highlights from the latest articles in the treatment of neurogenic bladder



With the advent of minimally invasive techniques in recent years, the patient with a neurogenic bladder has many options to treat refractory voiding symptoms. Below we discuss three important articles that have impacted the way the practitioner must think about treating patients with voiding dysfunction due to neurologic disease.

Sacral neuromodulation: an effective treatment option for voiding dysfunction in the neurogenic population

Wallace PA, Lane FL, Noblett KL: Sacral nerve neuromodulation in patients with underlying neurologic disease. *Am. J. Obstet. Gynecol.* 197(1), 96.E1–E5 (2007).

Original studies evaluating InterStim® (Medtronic, MN, USA) therapy focused on refractory urinary urgency, frequency and urge incontinence. Patients with neurologic disease were excluded from these initial multicenter trials. Until now, data regarding sacral neuromodulation and its efficacy in the neurogenic bladder is limited to a small case series of only a few patients. Wallace, Lane and Noblett report on their experience with 33 patients with symptoms of urinary urgency, frequency, urge incontinence and urinary retention, all due to neurologic disease. After a brief period of test stimulation, 28 of 33 (85%) patients proceeded to permanent

implantation. This included 13 of 16 (81%) patients with multiple sclerosis, four of six (67%) with Parkinson's disease and 100% of patients with spina bifida (n = 2), cerebrovascular accident (n = 2), cerebral palsy (n = 1) and other neurologic conditions (n = 6). Postoperative 4-day voiding diaries demonstrated significant improvements in mean voiding frequency (from 10.5 to 6.0; p < 0.0001), nocturia episodes (from 2.6 to 0.8; p < 0.0001), incontinent episodes per 24 h (from 4.0 to 1.3; p < 0.0001), mean pads per 24 h (from 3.5 to 1; p < 0.002) and mean number of intermittent straight catheterizations per 24 h (from 3.8 to 1.6; p < 0.02). Mean follow-up in this group was 12.4 months. While long-term, prospective studies evaluating InterStim in the neurogenic bladder population are needed, this initial data provides us with the insight to the potential utility of this technology in the future.

Neurogenic bladder and urinary diversion: long-term results of ileovesicostomy

Tan H, Stoffel J, Daignault S, McGuire EJ, Latini JM: Ileovesicostomy for adults with neurogenic bladders: complications and potential risk factors for adverse outcomes. *Neurourol. Urodynam.* 27, 238–243 (2008).

Patients with neurogenic bladders who are unable to perform clean intermittent catheterization due to limitations

in manual dexterity or cognition have the option of an ileovesicostomy. An ileovesicostomy provides patients with a low-maintenance method for storage and evacuation of urine at low bladder pressure, and the ability to remain continent per urethra. The University of Michigan (MI, USA) reviewed data from 50 adults who underwent ileovesicostomy by a single surgeon (EJM) in order to determine

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long-term results and complications, and to identify risk factors that may predict poor outcomes. At a mean follow-up of 26.3 months, 19 (38%) patients had some type of stomal complication, 11 (22%) had a mechanical complication and 27 (54%) had a wound or bowel complication. A total of 27 patients (54%) required reoperation, which included patients needing stomal revision (n = 8), ileovesicostomy revision (n = 6), urethral closure (n = 6),

fistula closure (n = 11), sling (n = 7), botox injection (n = 4), collagen injection (n = 2), wound repair (n = 6) or other (n = 1). No pre-existing risk factor was found to be associated with the measured outcomes in this study. This study represents the largest series to date, and demonstrates that careful patient selection is required. Additionally, patients must be properly counseled so they may be aware of the potential complications noted in this study.

Spinal cord injury and detrusor–sphincter dyssynergia: results of botulinum toxin injection and patient satisfaction

Kuo HC: Therapeutic satisfaction and dissatisfaction in patients with spinal cord lesions and detrusor sphincter dyssynergia who received detrusor botulinum toxin A injection. *Urology* 72, 1056–1060 (2008).

This study prospectively evaluated 50 patients with spinal-cord injuries who had urodynamically-proven detrusor–sphincter dyssynergia. All patients received 200 units of botulinum toxin type A, mixed in 20 ml of normal saline, which was injected at 40 sites throughout the bladder (sparing the trigone). Outcomes were assessed with videourodynamics at baseline, 3 and 6 months. Patient perception of lower urinary tract dysfunction was assessed with the Urogenital Distress Inventory 6-item short form (UDI-6), and the effect of Botox® on quality of life was evaluated with the Incontinence Impact Questionnaire 7-item short form (IIQ-7). Of the 45 patients who voided spontaneously (by reflex or tapping) at baseline, only 13 needed intermittent

catheterization to empty their bladder. At 3 months, there were significant improvements in post-void residual volume, cystometric capacity and detrusor pressure at maximum flow. These urodynamic effects persisted at 6 months. UDI-6 and IIQ-7 scores improved significantly at 3 months (p = 0.01 and 0.03, respectively); however, scores reverted closer to baseline at the 6-month mark. Further studies are necessary so as to discover the optimal dose, site for injection and number of sites in order to have the optimal effect in patients with neurogenic bladder.

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