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VOIDING DYSFUNCTION IN PATIENTS WITH DYSAUTONOMIA

Hypothesis / aims of study
Dysautonomia, or autonomic dysfunction, is a primary neurologic condition resulting from failure of the sympathetic or parasympathetic nervous systems. The disorder has a myriad of clinical presentations including dysregulation of body temperature, orthostatic intolerance, gastrointestinal motility disorders and chronic pain syndromes. Urologically, while sexual dysfunction has been recognized as part of the autonomic dysfunction spectrum, voiding symptoms have been inadequately characterized. We present the chief urologic complaints, results of urodynamic studies and treatments of patients with a known history of dysautonomia referred to our neuro-urology clinic.

Study design, materials and methods
Retrospective chart review was performed on all patients seen between 2003 and 2008 in the neuro-urology clinic for voiding dysfunction with the concomitant diagnosis of dysautonomia. Patients with other neurologic diagnoses, such a multiple sclerosis or a history of spinal surgery, were excluded from the analysis. All patients underwent focused history and physical examination as well as video urodynamic studies. Upper tract imaging by renal ultrasound or computerized tomography of the abdomen/pelvis was performed on select patients. Treatment modalities that subjectively and objectively improved the patient's symptoms were recorded. Objective improvements were measured via post void residual bladder volume, uroflowmetry and/or urodynamic studies.

Results
Of 443 patients with the diagnosis of dysautonomia, 37 (8%) were referred for evaluation of voiding dysfunction. Mean age was 47 years (range 12 - 80) and 31/37 (84%) patients were female. The chief urologic complaint was urgency +/- incontinence, hesitancy or the feeling of incomplete bladder emptying in 24 (65%), 7 (19%) and 6 (16%) patients, respectively (table 1). Corresponding videourodynamic findings are listed in table 1. Hydronephrosis was not seen in any patients (0/20) undergoing upper tract imaging. Treatment modalities included anticholinergics (46%), pelvic floor physical therapy (22%), alpha blockers (14%), sacral neuromodulation (14%), clean intermittent catheterization (11%), intradetrusor botulinum toxin injections (3%), augmentation cystoplasty (3%) and observation (3%).

Table 1 – Chief urologic complaints and corresponding urodynamic findings in patients with dysautonomia and voiding dysfunction.

Presenting Complaint	**Urodynamic Findings**
Urgency +/- incontinence (n = 24)	DO – 16 (67%)
	DSD – 6 (25%)
	Detrusor acontractility/hypocontractility – 2 (8%)
Hesitancy (n = 7)	DO – 0 (0%)
	DSD – 5 (71%)
	Detrusor acontractility/hypocontractility – 2 (29%)
Incomplete emptying (n = 6)	DO – 0 (0%)
	DSD – 4 (67%)
	Detrusor acontractility/hypocontractility – 2 (33%)
Total = 37	

Interpretation of results
Approximately 8% of patients with dysautonomia reported voiding dysfunction. The majority of patients (65%) presented with a chief complaint of urinary urgency with or without urge incontinence. The chief voiding complaint did not reliably coincide with the urodynamic diagnosis, thus emphasizing the importance of baseline urodynamic testing in all patients with dysautonomia and voiding complaints. No patients were found to have upper tract pathology. A larger scale study would be beneficial in determining the utility of upper tract screening in this patient population. Multimodal treatment options were utilized. The majority of the patients benefitted from anticholinergics, pelvic floor physical therapy, alpha blockers and/or sacral neuromodulation.

Concluding message
A minority (8%) of patients with dysautonomia displayed voiding symptoms severe enough to warrant neuro-urologic referral. Symptoms upon presentation did not reliably coincide with urodynamic findings. Urodynamically, most patients exhibited either detrusor overactivity or detrusor sphincter dyssynergia. Upper tract changes were not seen. The majority of patients were successfully managed with medical or physical therapy.

Specify source of funding or grant	**None**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require eithics committee approval because	**the study is a retrospective chart review.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**