

**NEUROGENIC VERSUS IDIOPATHIC DETRUSOR OVERACTIVITY:  
POTENTIAL RAMIFICATIONS OF URODYNAMIC DISTINCTIONS**Hypothesis / aims of study

It is generally believed that detrusor overactivity (DO) in the setting of neurological disease represents a more severe form than that seen in patients with no known underlying disorder. In this study we sought to determine if the urodynamic (UD) characteristics of DO differed between neurogenic and non-neurogenic patients. These findings might explain differences in treatment success in subgroups, and furthermore should begin to provide insight into which patients with idiopathic DO should be evaluated for an underlying neurological source.

Study design, materials and methods

Over a 3 year time period, a total of 130 patients with multiple sclerosis underwent Neurourological evaluation; 86 had UDS. Of these, 54 women were found to have DO. This group was compared to a cohort of 42 women found to have idiopathic DO during UD performed for lower urinary tract symptoms (LUTS) over the same time period. The most common LUTS being evaluated in this group were stress incontinence, urge incontinence, urinary frequency, and voiding symptomatology. Age, amplitude of DO (AMP), threshold volume of DO (VOL), capacity (CC), maximum detrusor pressure (Pdet.max), maximum flow rate (Qmax), Voiding pressure at Qmax (pdet.Qmax), residual volume (PVR), and presence of obstruction secondary to bladder neck or sphincter dyssynergia (DSD) or pelvic floor dysfunction (PFD) were assessed.

Results

Both AMP of initial DO and Pdet.max were higher in the MS group. Interestingly, threshold volume was higher in the MS group, which we attribute to a relatively high rate of voiding dysfunction and elevated residual in these patient. Univariate analysis revealed no independent impact of age, though the MS patients were younger overall.

	MS patients (n=54)	Non-MS patients (n=42)	p value
Age	50.2 ± 8.8	64.5 ± 16.4	.223
AMP DO (cm water)	28.3 ± 20.1	20.5 ± 9.5	.003
VOL of DO (ml)	187 ± 143	150 ± 103	.037
CC (ml)	287 ± 182	242 ± 139	.087
Pdet.max (cm water)	46.4 ± 21.5	30.8 ± 13.0	.002
Qmax (ml/sec)	12.2 ± 6.9	18.0 ± 9.1	.190
Pdet.Qmax (cm water)	33.1 ± 15.5	19.3 ± 12.9	.213
Median PVR (ml)	46.5	0	.049
% DSD or PFD	42.6%	11.9%	.010

Interpretation of results

Patients with neurogenic DO due to MS have bladder contractions of stronger amplitude than those with idiopathic DO, even after controlling for age differences. This fact, combined with the high incidence of simultaneous voiding dysfunction, with elevated residual and reduced functional capacity, likely influences the efficacy of single agent therapy with antimuscarinic agents in this patient population.

Concluding message

Neurogenic overactive contractions in patients with MS are higher in magnitude than patients with non-neurogenic DO, making effective treatment more difficult. Further studies are indicated to determine if patients with idiopathic, high amplitude DO should be screened for an underlying neurological cause based on these findings, and to determine if cut off values for DO can be developed.