

**Abstract Reproduction Form B-1**

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Institution	Children's Memorial Hospital, Chicago, IL USA
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Title (type in CAPITAL LETTERS)	TRANSVERSE MYELITIS IN CHILDREN: THE URODYNAMIC FINDINGS AND TREATMENT USING ELECTRICAL BLADDER STIMULATION

Aims of Study:

Transverse myelitis is an uncommon neurologic disease that is probably viral in origin. It affects the entire thickness of the spinal cord with a variety of neurological sequelae. Although the urodynamic findings in adults with transverse myelitis have been investigated and reported, the urodynamic findings in children have not been well delineated. In children, transverse myelitis results in a decrease sensation of bladder filling, and either a hypocontractile bladder with detrusor sphincter dyssynergia or an acontractile bladder. Extensive past experience with intravesical transurethral bladder stimulation has indicated that those patients who succeed with this program, initially develop increase sensation of bladder fullness. The concept for this study was to see whether bladder stimulation could help improve sensation in this subset of children with transverse myelitis. The objectives, therefore, were to; 1. Examine the urodynamic findings in children with transverse myelitis, and 2. Determine the efficacy and safety of transurethral bladder stimulation to treat these children.

Methods:

Seven consecutive patients with the diagnosis of transverse myelitis and voiding dysfunction had urodynamic evaluation. The urodynamic parameters included: 1. Sensation of bladder filling, 2. Cystometry, and 3. Electromyography.

Transurethral electrical bladder stimulation was performed on 4 of these 7 patients. The technique has been previously described, but essentially requires catheterization with an electrocatheter. The bladder is slow filled to 1/3 capacity with normal saline. After a 15 minute control observation period, with strip monitoring, a monophasic wave package is delivered to the



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bladder mucosa in contact with the saline for 60 minutes. A 15 minute post therapy observation period completes the daily outpatient session. The initial session requires 5 treatments per week for 4 weeks. The efficacy of bladder stimulation was then determined by repeat urodynamic evaluation.

### Results:

The patient ages ranged from 3-18 years of age. The urodynamic findings before bladder stimulation were; 1. Decrease sensation to void (all patients); 2. Hypocontractile bladder with detrusor sphincter dyssynergia (4 patients); 3. Acontractile bladder (3 patients). For the four patients who underwent bladder stimulation, the urodynamic findings were: 1. All 4 patients had improved sensation of bladder filling; 2. Three patients with a hypocontractile bladder had improved bladder contractility with either a marked reduction or complete resolution of dyssynergia; and 3. One patient with an acontractile bladder who received bladder stimulation did not have improved contractility. No complications occurred.

### Conclusions:

Transverse myelitis in children results in decrease sensation of bladder filling, and either a hypocontractile bladder with detrusor sphincter dyssynergia or an acontractile bladder. In adults with transverse myelitis, who have been followed extensively, initial "spinal shock" leads to a more mature neurologic lesion with a variety of urologic findings. Experience with intravesical bladder stimulation in other groups of patients with neurogenic bladder disease indicates that early intervention results in greater acquisition of bladder sensory and subsequent motor function. Although the results are early, this study indicates that similar neuroulogic advantages might be expected in the child with transverse myelitis undergoing intravesical bladder stimulation.