

## DIABETES MELLITUS ASSOCIATED URODYNAMIC CHANGES IN SPINAL CORD INJURED INDIVIDUALS

### Hypothesis / aims of study:

Diabetes mellitus and urological problems are common in patients with spinal cord injuries. Bladder dysfunction resulting from Diabetes Mellitus has been well studied in the able bodies patient population but has been poorly characterized in persons with pre-existing “neurogenic bladders”. Our study aim was to determine whether spinal cord injured patients with diabetes display similar urodynamic differences as compared to a non-diabetic cohort.

### Study design, materials and methods

Charts of patients with traumatic spinal cord injuries who had an urodynamic studies done by the SCI service between 2000-2005 were reviewed. To avoid comparison of mixed lesions and incomplete motor lesions with more complete upper motor neuron injuries, we excluded patients with motor sparing (i.e. ASIA C, D and E) and patients with lower motor neuron lesions (i.e. lesions in the sacral cord or cauda equine). All patients were adults and had recovered from spinal shock as defined by return of sacral reflexes. All patients were free of urinary tract infections at the time of the study. During cystometry, the presence or absence of a spontaneous contraction was recorded. The volume at which bladder contraction greater than 15cm H<sub>2</sub>O was detected was recorded as bladder capacity. If a spontaneous contraction occurred the maximal isometric pressure was recorder as an indirect measure of bladder contractility. The presence of autonomic dysreflexia and post void residual volumes after catheter removal were recorded. If the patient had no spontaneous voiding the volume at which the study was terminated was recorded as bladder capacity.

Results: Data on 10 diabetic patients and 26 nondiabetic patients with simultaneous spinal cord injury were collected. 27 patients had cervical injuries and 9 had thoracic injuries. Thirty patients had complete (ASIA A) lesions and 6 had incomplete sensory lesions. Bladder capacity was not different between both groups however the diabetic patients were significantly more likely to have acontractile bladders ( $p=0.026$ ). With such a large number of acontractile bladders in the diabetic group, there were insufficient data for isometric pressures and postvoid residuals to make any intergroup comparisons. Nondiabetic patients were less likely to experience autonomic dysreflexia but this did not reach statistical significance.

Interpretation of results: Diabetic patients with suprasacral spinal cord injuries appear to be more likely to have acontractile bladders than their nondiabetic counterparts. No significant differences were observed in bladder capacity, residual volumes, isometric pressures and presence of autonomic dysreflexia. The small number of patients in our study limits our ability to make conclusive interpretations and a larger study will need to be performed to confirm this finding.

Concluding message Diabetic patients with suprasacral spinal cord injuries appear to be more likely to have acontractile bladders than their nondiabetic counterparts.

