

## LONG-TERM FOLLOW-UP OF BLADDER FUNCTION IN SPINAL CORD INJURY PATIENTS

### Hypothesis / aims of study

Bladder dysfunction is a common consequence of spinal cord injury (SCI) and depends on the completeness and the level of the lesion. Patients with suprasacral injuries usually suffer from neurogenic detrusor overactivity (NDO) mostly combined with detrusor-sphincter dyssynergia (DSD). Without adequate treatment, this adverse combination puts the upper urinary tract at risk due to high intravesical pressure often causing vesico-ureteral-reflux (VUR). Based on improved therapeutic options in the last decades, life expectancy and quality of life constantly increased in SCI patients. We aimed to evaluate the bladder function in the long-term after SCI.

### Study design, materials and methods

A consecutive series of 56 patients (12 females, 44 males) suffering from neurogenic bladder dysfunction due to SCI for at least five years with regular follow-up and a current urodynamic evaluation between January and September 2010 were evaluated.

### Results

The mean age at SCI was 31 years (standard deviation  $\pm 13$  years) and the mean time period between SCI and the current urodynamic evaluation was 15 years (5-42). 51 patients suffered from traumatic and 5 from other (toxic, inflammatory) lesions. The lesion level was cervical in 14, thoracic in 32, lumbar in 8 and sacral in 2 patients. Most patients (29/56) relied on clean intermittent catheterization (CIC), 7 had an indwelling catheter and nine voided spontaneously. 34% (19/56) reported urinary incontinence. Oxybutynin was the favourite medical treatment (15/56). Unilateral VUR was observed in 7 patients, bilateral in one patient. VUR was low grade (maximum grade 2). Mean cystometric capacity was 447 (SD $\pm 136$ ) mL and mean compliance 65 (SD $\pm 213$ ) mL/cmH<sub>2</sub>O. In 29 patients NDO was observed (14 were without treatment, the remaining were mostly under oxybutynin). Of those, 16 had NDO incontinence with mean detrusor leak point pressure of 42 (SD $\pm 29$ ) cmH<sub>2</sub>O.

### Interpretation of results

Our series reveals good long-term results. Due to regular urodynamic evaluation and adapting therapies, secondary complications of the upper urinary tract are preserved and an eligible condition of the lower urinary tract is achieved.

### Concluding message

Most of our regularly followed patients suffering from neurogenic bladder dysfunction due to SCI for at least 5 years had normal cystometric capacity and compliance. VUR was quite rare and low grade. Thus regular follow-up with urodynamic evaluation allowing for individual bladder management is strongly recommended.

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**Ethical approval:**

This study was approved by the local ethics committee (Kantonale Ethikkommission Zürich)

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