

THE USE OF INTESTINE (URINARY DIVERSION) IN PATIENTS WITH NEUROGENIC BLADDER

Hypothesis / aims of study

The spinal cord is composed of an intricate network of nerve fibers connecting the brain with end organs such as skin, muscle and urinary bladder. An injury to the cord disrupts that network and subsequently affects all sensory and motor actions below the lesion. Spinal cord injury (SCI), whether complete or incomplete, mediates damage to spinal tracts involved in central control of the lower urinary tract (LUT) and leads to simultaneous activation of parasympathetic neurons innervating the detrusor and somatic neurons innervating the external urethral sphincter to cause varying degrees of detrusor–sphincter dyssynergia (DSD).

In most patients with SCI, the first event is spinal shock followed by a recovery phase, during which neurologic changes emerge. In the shock phase, the bladder becomes flaccid and areflexic; however, the activity of the external sphincter recovers rapidly after SCI. Thus, urinary retention develops, and patients may need intermittent or continuous catheterization to eliminate urine. Following the shock phase, voiding reflexes start to reappear after 2 to 12 weeks, a phenomenon that is involuntary to reflex bladder contractions. These reflexes generate low vesical pressure initially, but over time, bladder contractions become more powerful and produce involuntary contractions. Because of resulting DSD, the bladder partially empties, and postvoiding residual volume increases over time. Bladder hyperreflexia and DSD lead to high intravesical pressure with or without vesical-ureteral reflux, which leads to impairment of renal functions.

The goals of urologic management of neurogenic bladder dysfunction are to achieve and maintain low-pressure urinary storage and voiding, urinary continence, and preservation of renal functions. Intermittent or continuous catheterization is used initially to eliminate urine, however, medications remain the mainstay treatment modality to control urinary symptoms. In contrast, urinary diversion, is still needed if other modalities fail to keep low urinary pressure, and continence. Urinary diversion procedures are currently limited to patients with spinal cord injury and hydronephrosis including renal impairment. Also, difficult to manage incontinence poses a risk for persistent infection and social isolation; those patients are also considered for urinary diversion.

In this proposed study, we plan to retrospectively examine whether urinary diversion procedures had a significant benefit in terms of improved quality of life, reduced complication when compared to clean self-intermittent catheterization (CIC).

Study design, materials and methods

A retrospective chart review is conducted in patients with spinal cord injury with symptoms including urinary retention, incontinence, autonomic dysreflexia and detrusor overactivity by urodynamic studies. Patients with dementia, and active multiple sclerosis will be excluded from this analysis.

Procedures of urinary diversion include augmentation ileocystoplasty, Mitofanoff (appenicovesicostomy), and ileal conduit (Indiana and Koch pouch).

Number of patients in the analysis is 36 patients. Analysis of patient outcome includes quality of life assessment SF-36, Incontinence questionnaire (International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF), Male Sexual Health Questionnaire (MSHQ), The Female Sexual Function Index (FSFI).

Statistical analysis is conducted by SPSS analysis software; statistical significance is set at $P \leq 0.05$. The files of those patients will be verified for complications including reoperation, changes in the upper urinary tract, urinary tract infection and degree of incontinence.

Results

Patients were stratified into two groups; the first group underwent a urinary diversion procedure, and compared to a well-matched cohort who had conservative management.

Quality of life (SF-36), Incontinence questionnaire (UDI-6), Female Sexual Function Index (FSFI), and International Index of Erectile Function (IIEF-5) were used to compare study groups.

29 patients were included in this study. 13 patients underwent a urinary diversion, mean age was 45.84 ± 16.41 years. 16 patients had conservative treatment, mean age was 47.61 ± 13.90 years. In Quality of life (SF-36), Bodily Pain (BP) component was significantly lower in patients underwent urinary diversion ($p=0.009$); Vitality and Social Functioning components were significantly lower in patients underwent urinary diversion ($p=0.045$; $p=0.005$ respectively); Physical Functioning, however, was not significantly different between groups. In Incontinence questionnaire (UDI-6), patients who underwent urinary diversion scored significantly lower (17.84 ± 5.2) than patients who had conservative treatment (47.05 ± 5.8) ($p=0.001$).

Interpretation of results

Urinary diversion procedures improve the quality of life of patients with spinal cord injury via lowering the bodily pain and improving the urinary dysfunction symptoms.

Concluding message

Urinary diversion procedures improve the quality of life of patients with spinal cord injury .

References

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Disclosures

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