

INFLUENCE OF BLADDER MANAGEMENT ON URINARY STONE FORMATION IN SPINAL CORD INJURED PATIENTS

Hypothesis / aims of study

To study influence of bladder management on urinary stone formation in spinal cord injury patients.

Study design, materials and methods

Retrospective analysis clinical data of 337 voiding dysfunction cases after spinal cord injury. All patients were routinely accept B ultrasound of the urinary tract, urinalysis, urine culture, video urodynamic study. Of which 128 cases of spinal cord injury patients with urinary calculi(stone group), Others 209 cases of spinal cord injury patients without urinary stone as a control group.

Stone group(128 cases) Including: male 113 cases and female 15 cases, aged from 17 to 68 years old, average 34.9 years old. ASIA defective grading: 39 cases of grade A, 47 cases of grade B, 23 cases of grade C, 19 cases of grade D.

Control group(209 cases) Including: male 193 cases and female 16 cases, aged from 14 to 75 years old, average 37.1 years old. ASIA defective grading: 73 cases of grade A, 59 cases of grade B, 32 cases of grade C, 45 cases of grade D.

Results

In 128 urinary calculi patients after spinal cord injury, bladder stoma in 32 cases, regular replacement of indwelling catheter in 34 cases, intermittent catheterization in 12 cases, triggered reflex voiding in 19 cases, voiding by abdominal straining in 11 cases, condom catheters with urine collection devices in 20 cases. In 128 urinary calculi patients, 120 patients presented with urinary tract infection. Video urodynamic suggest detrusor areflexia in 39 cases, detrusor overactivity in 63 cases, detrusor external sphincter dyssynergia in 41 cases, detrusor bladder neck dyssynergia in 11 cases, external urethral sphincter overactivity in 27 cases, urethral sphincter deficiency in 11 cases. The pathology of several physiological conditions coexist in some patients.

Table1 Bladder management methods of spinal cord injury patients

Management methods	Cystostomy	Indwelling catheter	Reflex voiding
Stone group (n)	32 ^{①②}	34 ^{①②}	19 ^{①②}
Control group (n)	15	17	10

Table2 Bladder management methods of spinal cord injury patients

Management methods	Bladder expression	Condom catheters	IC
Stone group (n)	11 ^①	20 ^①	12
Control group (n)	20	15	132

① Compared with the intermittent catheterization group, P<0.05 ,

② Compared with the bladder expression group,P<0.05

③ IC, Intermittent catheterisation

Interpretation of results

Bladder management is a crucial element in improved outcomes for individuals with spinal cord injury. The goal is to maintain and preserve a functional, infection-free genitourinary system by preventing upper and lower tract complications with a management system that is compatible with an injury-free lifestyle. The ultimate goal of therapy is to achieve and maintain adequate bladder drainage with low-pressure urine storage and voiding. There is no "gold standard" for methods of bladder management. Intermittent catheterization provides a method of emptying the neurogenic bladder without leaving an indwelling catheter and lessens the frequency of long-term complications such as urinary calculi encountered with other methods of neurogenic bladder management.

Concluding message

Bladder management after spinal cord injury have a major impact on urinary stones formation. Low urinary tract dysfunction, long-term indwelling urinary catheter, reflex voiding and cystostomy may be risk factors for urinary stone formation.

Disclosures

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