

Early application of clean intermittent catheterization in children with neurogenic bladder

Wen JG¹, Li YW², Wen YB², He XF², Li YL², Wu JW², Feng JJ², Yang J³

1. First Affiliated Hospital of Zhengzhou University, Zhengzhou, China

2. Pediatric Urodynamic Center and Department of Urology, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China

3. Outpatient Clinic of First Affiliated Hospital of Zhengzhou University, Zhengzhou, China

Introduction

Neurogenic bladder (NB) is common in children which is difficult to cure. Many cases with NB treated irrelevantly develop upper urinary tract deterioration. Clean intermittent catheterization (CIC) has been widely used to empty bladder currently. However, it is still controversial regarding when to use it. Aim to find evidence whether it is better to apply CIC when infants diagnosed neurogenic bladder at the first visit.

Objective

To investigate the effect of early application of CIC in children with NB.

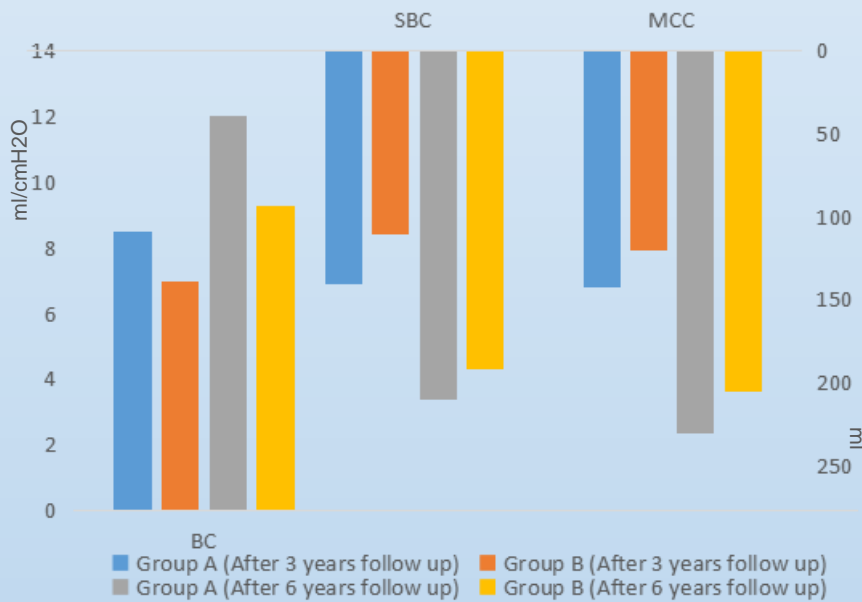
Methods

A retrospective analysis was carried out in 64 infants with NB in my hospital were divided into early CIC group (Group A, <1 year old) and late CIC group (Group B, >3 years old) according to the treatment time. Group A included 29 patients (19 boys and 10 girls) whose ages ranged from 4-11 months (7.5 ± 2.8 m). Of which, 4 suffered from spina bifida manifesta, 22 spina bifida occulta, 2 sacral dysplasia, 1 meningitis. Group B included 35 cases (20 boys and 15 girls) whose ages ranged from 5-11 months (8.0 ± 2.9 m), of which 2 suffered from spina bifida manifesta, 28 spina bifida occulta, 4 sacral dysplasia, 1 postoperative pelvic surgery. Before CIC, there were no significant difference of the bladder compliance (BC), the maximum cystometric capacity (MCC) and the safety bladder capacity (SBC) between two groups. Urodynamic parameters and complications of 64 patients who were successfully followed up for 6 years were compared.

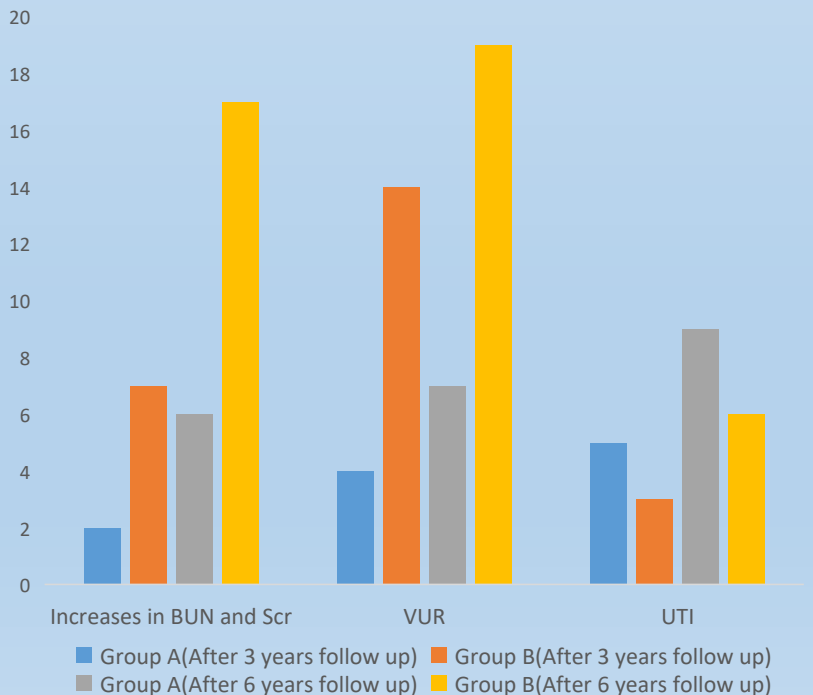
Results

After 3 years follow up, BC, MCC and SBC [(8.5 ± 1.9) ml/cmH₂O, (140 ± 25) ml, (142 ± 29) ml] in early CIC group were significantly higher than those in late CIC group [(7.0 ± 2.2) ml/cmH₂O, (110 ± 31) ml, (120 ± 28) ml; $(P < 0.05)$]. After 6 years follow up, BC, MCC and SBC [(12.0 ± 2.5) ml/cmH₂O, (210 ± 26) ml, (230 ± 30) ml] in early CIC group were significantly higher than those in late CIC group [(9.3 ± 2.3) ml/cmH₂O, (192 ± 31) ml, (205 ± 35) ml, $(P < 0.05)$], the number of vesicoureteral reflux in early group was significantly less than that in late group ($P < 0.05$). Increases of BUN and serum creatinine were found in 6 cases (20.7%) in early and 17 cases (48.6%) in late treatment group, the difference was significant ($P < 0.05$).

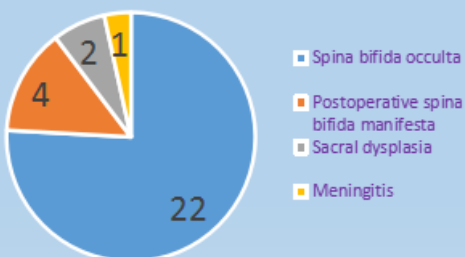
Comparison of urodynamic parameters between two groups



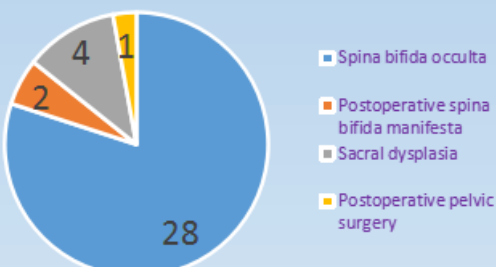
The number of upper urinary tract complications during the follow up



Early CIC Group (Group A)



Late CIC Group (Group B)



Conclusion For NB patients, treatment response of early CIC is better than that of late CIC.

Disclosures Statement

This research was funded by the National Natural Science Foundation of China (project number: 81670689).