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EFFICACY OF CLEAN INTERMITTENT CATHETERIZATION（CIC）FOR URINARY INCONTINENCE IN CHILDREN WITH NEUROGENIC BLADDER DYSFUNCTION SECONDARY TO MYELODYSPLASIA

Hypothesis / aims of study

After introduction of clean intermittent catheterization (CIC) for the management option of neurogenic bladder dysfunction in myelodysplastic children, the frequency upper urinary tract deterioration and renal insufficiency was markedly decreased, and the outcome of myelodysplastic patients has been improved(1). However, urinary incontinence in such patients is a challenging problem, because urinary incontinence extremely worsens their quality of life, and its influence becomes more significant as patients' age becomes higher. In the present study, we assessed the efficacy of CIC in children having urinary incontinence with neurogenic bladder dysfunction secondary to myelodysplasia.

Study design, materials and methods

We reviewed the records of 19 boys and 19 girls with a neurogenic bladder dysfunction secondary to myelodysplasia. Patients' age at CIC introduction ranged between 8 month and 16 years (mean 3.8 years), and the mean observation period was 8.9 years (range 12 months – 18 years). Prior to introduction of CIC, all of them had moderate to severe urinary incontinence after school age. The patients were stratified into two groups according to the presence of upper urinary tract dilation and vesicoureteral reflux (VUR). Sixteen children, who had already had the dilated upper urinary tract or VUR, were enrolled in the Group A. The remaining 22 children having a normal upper urinary tract were studied as the Group B. In this study, we defined acceptable continence as having completely dry conditions or slight stress urinary incontinence that patients can manage with several small pads. Urinary incontinence was evaluated after school age. Anticholinergic agents were administered to 3 Group A and 6 Group B patients. Statistical comparisons were made using the chi-squared test and Mann-Whitney's U test. The statistical difference was considered significant when p-value was less than 0.05. Data were reported as mean±SD.

Results

Of the 16 Group A patients, six reported acceptable continence with CIC alone, and 3 patients became acceptable status with CIC plus anticholinergics. Eventually, three patients underwent enterocystoplasty for upper urinary tract dilation and urinary tract infection refractory to conservative management, and their urinary incontinence was improved to the acceptable status. In the remaining 4 patients, their urinary incontinence was improved by CIC, but was persistent. Of the 22 Group B patients, nine patients reported acceptable continent conditions with CIC alone, and 2 patients reported acceptable incontinence with CIC plus anti-cholinergics. Finally, one patient underwent enterocystoplasty, and one enterocystoplasty with anti-incontinence surgery for *de novo* upper urinary tract deterioration refractory to conservative treatments. Subsequent to surgical interventions, their urinary incontinence was markedly improved to acceptable one. In the remaining 9 patients, urinary incontinence was persistent even after inception of CIC.

When CIC was introduced, urodynamics showed no significant difference in vesical compliance or dLPP between the Groups A and B. However, vesical compliance appeared to decrease in Group A. We compared vesical compliance and dLPP between patients whose urinary incontinence was improved to acceptable conditions by CIC and those with persistent urinary incontinence concerning each group. Vesical compliance was significantly higher in cases who reported acceptable continence than in those with incontinence persistent regarding all participants (10±7.2 versus 6.8±6.2 ml/cmH2O, P=0.0347) and Group A (9.1±6.7 versus 3.7±1.4 ml/cmH2O, P=0.0350). There was no significant difference in Group B. dLPP was significantly higher in patients who obtained acceptable continence than in those having persistent incontinence regarding all participants (50±17.2 versus 25±6.6 ml/cmH2O, P=0.0003), Group A (51±21.4 versus 26±7.2 ml/cmH2O, P=0.0348) and also, Group B (49±12.8 versus 23.7±6.3 ml/cmH2O,P=0.0043).

Interpretation of results

Under our criteria, acceptable continence was achieved in 56% in group A and 50% in group B patients after introduction of CIC. Similar to other reports(2,3), the effect of CIC for the urinary incontinence was not a satisfactory also in our patient series. The vesical compliance appeared to decrease in patients who had upper urinary tract disorders. In the Group A, however, there were 5 patients whose dLPP was over 40 cmH2O/ml. The dLPP may not be regarded high, since they had upper urinary tract dilation or VUR. On the other hand, in the Group B, there were 14 and 5 patients whose vesical compliance was under 10 cmH2O/ml and dLPP was over 40 cmH2O/ml, respectively. We positively introduce CIC to the patients who have poor prognostic factors such as low compliance bladder or high dLPP. We believe that CIC in the Group B was introduced before upper urinary tract deterioration occurs. Vesical compliance was significantly higher in patients who reported acceptable continence than in those with persistent incontinence on the subject of all participants and the Group A, whereas there was no significant difference in the Group B. We recommend CIC to the case with bladder shape deformity or residual urine; Group B includes patients in whom high bladder compliance was preserved until CIC was introduced. Therefore, it may be that there was no significant difference between patients who acquired acceptable continence and incontinence persistent in Group B.

Concluding message

The efficacy of CIC for urinary incontinence is unsatisfactory, and achievement of continence is more difficult for patients with low outlet resistance. Therefore, it may be that the anti-incontinence operation should be done to the patient without the upper urinary tract deterioration positively.

References

(1)J Urol. 1972;107:458-61.
(2)Paraplegia. 1993,31(1):22-7.
(3)J Urol. 1994 ,152:1582-5

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What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require eithics committee approval because	**part of normal clinical practice but followed the Declaration of Helsinki Informed consent was obtained from the patients.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**