

APPLICATION OF SYNCHRO CYSTOURETHRALMETRY IN DIAGNOSIS OF OAB IN CHILDREN

Hypothesis / aims of study

To investigate the relationship between urethral instability (URI) and overactive bladder (OAB) by synchro cystourethralmetry (SCUM) in children.

Study design, materials and methods

One hundred twenty six children (8.5±1.1 y) with OAB and 36 children (8.2±1.3 y) without OAB evaluated by SCUM between August 2014 and June 2016 in Pediatric Urodynamic Center of Zhengzhou University China. The prevalence of detrusor overactivity (DO) and URI as well as the sensitivity of diagnosis of OAB by using DO and SCUM were compared between two groups. The OAB children with URI were divided into two groups, stimulation group (SG): pudendal transcutaneous electrical nerve stimulation (PTENS) + anisodus tanguticus/654-2 (antimuscarinics); without stimulation group (654-2 group or with no PTENS). The treatment response including ①cure ②partial response (improvement), ③no response. Maximum voided volume (MVV), average voided volume (AVV) and number of voids daily (NV) recorded by voiding diary.

Results

The prevalence of DO and URI was 51.6% (65/126) and 32.5%(41/126) respectively. Both DO and URI was found in 18 (14.3%) OAB children and no any of them existed in 2(1.6%) cases. In controls, no DO was found and the prevalence of URI was 5.6% (2/36). The prevalence of URI in children with OAB was significant higher than children without OAB (P<0.05). When compared with the efficiency of etiological diagnosis OAB with DO, sensitivity and Youden index of SCUM was higher (98.4%, 0.928 vs. 65.9%, 0.659), but the specificity of SCUM was lower than DO (94.4% vs. 100%). In SG (38/59), a total of 60.5% of patients with treatment was cured, and 39.5% was significant improvement. while the 654-2 group (21/59) reported no cure, but 33.3% patients was partial response (p<0.001). AVV and MVV showed a statistically significant increase and NV decreased significantly in the SG.

Interpretation of results

We found that the prevalence of URI in children with OAB was significant higher than children without OAB examined by SCUM. The results indicated that URI was an important factor contribute to OAB in children, and we should consider the URI existed except for DO when we diagnosed OAB in clinic. When compared with the efficiency of etiological diagnosis OAB with DO, sensitivity and Youden index of SCUM was higher (98.4%, 0.928 vs. 65.9%, 0.659), but the specificity of SCUM was lower than DO (94.4% vs. 100%). It showed that SCUM was a useful tool to diagnose OAB induced by URI. We believe that refractory OAB in children should evaluated by SCUM, because we could observe the pressure variation of both detrusor and urethra at same time.

After PTENS treatment, of 60.5% patients was cured, and 39.5% was significant improvement in SG. while the control group reported no cure, but 33.3% patients was partial response. And AVV and MVV showed a statistically significant increase and NV decreased significantly in the SG. The results showed that PTENS is an effective treatment method for OAB with URI in children, because PTENS maybe enhance urethral sphincter tone and increase pelvic floor activity. SCUM also can provide efficient reference for electrical stimulation therapy in children with refractory OAB.

Concluding message

URI is an important factor contribute to OAB in children, and PTENS is an effective treatment method. SCUM is a useful tool to diagnose OAB induced by URI and provide efficient reference of electrical stimulation therapy in children with OAB.

References

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Disclosures

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