

## **GLOMERULATIONS OBSERVED IN CHILDREN WITH OVERACTIVE BLADDER - ARE GLOMERULATIONS POSSIBLE DIAGNOSTIC HALLMARKS OF INTERSTITIAL CYSTITIS IN CHILDREN? –**

### **Aim of study**

Interstitial cystitis (IC) in children may be not as rare as the literatures suggest. Children who present with the IC symptom complex are often thought to have voiding dysfunction<sup>1)</sup>. This prospective study was done to investigate whether glomerulations can be observed in children with refractory overactive bladder (OAB).

### **Materials and methods**

A total of 15 children who underwent bladder hydrodistention between 2002 to 2004 were enrolled in the study. Ten children had OAB symptoms that had been refractory to conventional urotherapy (OAB group). Two children (20%) in the OAB group had chronic bladder pain relieved by voiding. Pre-operative videourodynamic assessment demonstrated that all the children in the OAB group had idiopathic detrusor overactivity and anatomical lower urinary tract obstructions (LUTO); posterior urethral valves in seven boys, urethral ring stenosis in two boys and external urethral stenosis in one girl. Five children without OAB symptoms were included as controls; one girl with primary vesicoureteral reflux (VUR) and three girls with VUR secondary to spina bifida had endoscopic GAX collagen injection for the treatment and one boy underwent further investigation of asymptomatic gross hematuria. There were no IC patients in first-degree relatives of all the 15 children. While all subjects were under the age of 18 and idiopathic detrusor overactivity were detected in all of the OAB group, all the children met the other diagnostic criteria for IC established by the National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases in 1987, USA<sup>2)</sup>. Endoscopic correction for LUTO and GAX collagen injection for VUR were done after hydrodistention. The efficacy of endoscopic correction and hydrodistention in the OAB group was assessed by a questionnaire about urinary symptoms and by frequency/volume charts, according to the definition of clinical outcome conformed to the International Children's Continence Society<sup>3)</sup>. The data were analysed statistically using the non-parametric Mann-Whitney U test.

### **Results**

The patients comprised 10 boys and 5 girls aged between 5 and 12 years at the time of hydrodistention (mean age 7.3±2.0 years). The two groups were matched for age. **Table** shows the results of hydrodistention. Glomerulations were detected in eight children (80%) and hemorrhage in two (20%) in the OAB group. On the other hand, glomerulations were found in only one (20%) of the controls, with significant difference between the two groups. Relief of refractory OAB symptoms were obtained in six children (60%) and relief of chronic bladder pain in two (100%) with a mean follow-up of 12.2±7.7 months in the OAB group.

### **Interpretation of results**

While relief of OAB symptoms was obtained in 60% of the OAB group, it could not be possible to define whether endoscopic correction for LUTO or hydrodistention caused relief of OAB symptoms. However, most important findings were that 80% of children with refractory OAB developed glomerulations after hydrodistention and that glomerulations were significantly more frequent in children with refractory OAB than in controls.

### **Concluding message**

The diagnosis of IC in children has remained controversial. However, glomerulations are considered to be the hallmarks of IC. There must be some overlapping of symptoms and pathology between refractory OAB and early IC in children.

**Results of bladder hydrodistention, \*mean±SD, range**

Group	Age*	Maximum bladder capacity (ml)*	Maximum intravesical pressure (cm water)*	Glomerulations n (%)
OAB n=10	7.2±1.2 6-10	267.5± 73.8 200-380	78.1± 5.9 65-80	8 (80%)
Control n=5	7.6±3.2 5-12	244.0±141.2 100-450	78.0±2.7 75-80	1 (20%)

**References**

1. The epidemiology of interstitial cystitis: is it time to expand our definition? Urology 2001; **57**:95-9.
2. Summary of the National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases Workshop on Interstitial Cystitis, National Institutes of Health, Bethesda, Maryland, August 28-29, 1987. J Urol 1988; **140**:203-206.
3. Standardization and definitions in lower urinary tract dysfunction in children. International Children's Continence Society. BJU 1998; **81**:1-16.