

## THE ROLE OF PAEDIATRIC URODYNAMICS REVISITED

### Aims of Study

Videourodynamic studies can be used to assess detrusor pressure during filling and can demonstrate coexisting vesicoureteric reflux. Urodynamics play an important role in the management of children with complex urological and neurological conditions<sup>1</sup>. Performing invasive studies on children can be traumatic for the child and are sometimes difficult to do. We determined to review the paediatric studies that were performed in our centre to examine the difficulties that arose, assess quality of reports and whether the results had influenced management of the children concerned.

### Methods

All paediatric studies, performed during a one year period in one specialist urodynamic unit, covering a wide geographical area, were reviewed retrospectively. At the time of the review the policy was to sedate infants aged 6 months to 2 years and to insert suprapubic catheters in children aged over 3 years who had normal urethral sensation. Familiarisation visits were performed when children did not live far from the unit. The quality of reports was assessed to determine whether adequate information concerning urodynamic parameters and anatomical structure was given. A postal questionnaire was completed by the referring doctor at least six months after the test to determine whether and how the test had influenced management.

### Results

48 children attended for videourodynamic studies during the study period. 39 tests were performed successfully: 31 using urethral catheterisation and 8 using suprapubic catheterisation. 5 tests were not performed because of difficulties with urethral catheterisation and 4 tests were not performed because of difficulties with suprapubic catheters: 1 suprapubic catheter fell out, 1 child had clot retention and 2 suprapubic catheters did not record pressure accurately in spite of extensive troubleshooting. The median age of children, who had successful tests, was 50 months (range 2 months to 17 years). Underlying medical conditions were: spina bifida 15, sacral anomalies 8, renal failure 4, anorectal anomalies 3, urethral valves 2 and 'other' 7. 31 tests (79%) were uneventful, but the difficulties experienced in 8 tests (21%) included discomfort in 1 child (2%), non-cooperation with 2 children (5%), difficulties with the abdominal line being expelled in 3 children (7%) and in 3 tests (7%) the equipment failure of an ageing imaging intensifier. Sedation was used in 4 (10%) tests. On review of the reports of the completed tests, 38 (97%) contained adequate information concerning detrusor pressure changes during filling and radiological image. Leakage was noted in 34 (87%) reports.

33 (85%) postal questionnaires were returned. In 30 cases (91%) urodynamics had directly influenced management. In 2 cases the results had given useful information, but had not directly affected management and in 1 child cystometry had not reproduced the child's symptom of incontinence in spite of provocation and a repeat test is planned. 6 children had a significant overall rise in detrusor pressure, 4 of these had cystoplasties, 1 was managed by watchful waiting and 1 had an increase in CIC. 15 had detrusor overactivity, 1 underwent a cystoplasty, 1 was started on medication, 3 started CIC and 10 were being managed conservatively. 1 child was obstructed and was started on  $\alpha$  blockers. The other 8 tests did not show any significant abnormality that required treatment.

The way in which urodynamics influenced management is illustrated in Table 1.

Table 1: The way in which urodynamics influenced management in the 30 children where it had been felt to do so

renal transplant	cystoplasty	introduced CIC	stopped CIC	conservative management	Medication
2	5	4	1	16	2

### **Conclusions**

Quality control is of the essence in urodynamics and this is particularly true when dealing with children. The review was a valuable process and although we have always striven to have a child-centred approach it highlighted areas where we could improve our technique. Suprapubic catheters are now used less frequently and more time has been spent ensuring that children are familiarised with urethral catheterisation before the test. Neuropaths likely to need CIC are taught this prior to urodynamics so that urethral catheters can be used. We have had no failed tests since adjusting our technique. This review of our practice also showed that urodynamic studies directly influenced management in the vast majority of children and confirmed their important role.

References: J Urol 2001 165: 2335-40