

## NEUROUROLOGICAL FINDINGS OF CHILDREN WITH CEREBRAL PALSY PRIOR TO DORSAL RHIZOTOMY

### Hypothesis / aims of study

We have some knowledge about the neurourological outcomes of children with cerebral palsy (CP) according to some limited - small patient group - studies. Present study investigates the urodynamic and neurourological findings of children with CP who were addressed to a dorsal rhizotomy surgery for neurological findings.

### Study design, materials and methods

We reviewed the urinary problems and bladder function of a group of children with CP prior to selective dorsal rhizotomy. All patients were evaluated with a detailed history, physical examination, urine analysis and urodynamic studies. Urodynamic investigations included flow rate, residual urine, filling and voiding cystometry, detrusor leak point pressure and external anal sphincter electromyography. Urodynamics were carried out in supine position with induction of a transurethral of a 6-F double lumen catheter and transrectal one-lumen catheter. Prior to filling cystometry residual uriner volume was measured. Later cystometric evaluation was started with a eater filling rate of 5 mL/min. Filling cystometry was limited to the sensation of full bladder or total urine leakage. Total bladder capacity was taken as the total volume of water infused until the end of filling stage. All methods and definitions were based on the urodynamic standardization of International Continence Society.

### Results

A total of 34 children with CP; 24 boys (70.6%) and 10 girls (29.4%), were included in the present study. The mean age of boys, girls and whole group at referral was found to be 6.59 (1.65-9.76), 6.45 (3.5-11.37) and 6.55 (1.65-11.37) years, respectively. None of the patients had any abnormal sacral cutaneous finding. The most common problem of the study group was urinary incontinence (47.1%), encopresis (38.2%), constipation (20.5%), motor function (9.7%). Motor dysfunction and micturition control was the predominant symptom, so 38.2% of the group preferred to use diapers. Concerning male patients, a quarter of the patients (n=6) had undescended testis in physical examination. Urodynamic findings are summarized in table.

### Interpretation of results

Most of the children with CP seemed to have a low bladder capacity (90.6 %), hypocompliant bladder (90.3%) with overactive detrusor (93.8%) Although half of these patients seemed to have a hyposensitive bladder only a few patients (12.5%) needed clean intermittent catheterization; but the rest of the children with CP mean flow rates were quite slow. Detrusor dyssynergia is not a common finding for CPP.

### Concluding message

CPP showed evident findings in neurourological evaluation. Thus each CP child has to undergo a detailed urological investigation and follow-up through out their lifespan.

TABLE: Urodynamic findings in children with CP

Bladder sensation (n=19) Hyposensitive 52.6 % Normosensitive 36.8% Hypersensitive 10.5 %	Bladder capacity (n=32) Low 90.6% Normal 6.3% High 3.1%
Detrusor activity(n=32) Normoactive 6.2% Overactive 93.8%	Bladder compliance(n=32) Decreased 90.6% Normal 9.4%
Mean residual urine 20.25 ml (0-63) (n=28)	
Urinary retention at the end of urodynamics 12.5% (n=4)	
Detrusor dyssynergia 3.1% (n=1)	
Uroflowmetri (n=22) Maximum flow rate 11.1 (3-26) ml/s Mean flow rate 6.2 (2-14)ml/s Voided volume: 158.9 (49-292) ml	

### Disclosures

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