534

Chiu P K F[1], Lam T Y[1], Li M L[1], Yu C[1], Chu P[1], Man C W[1]
1. *Tuen Mun Hospital, Hong Kong*

SELECTIVE DORSAL RHIZOTOMY AND BLADDER FUNCTION IN CHILDREN WITH CEREBRAL PALSY

Hypothesis / aims of study
Selective dorsal rhizotomy (SDR) has been performed for cerebral palsy patients to treat lower limb spasticity and improve posture and walking. Published data on effect of SDR on bladder function is scarce. This study aims to investigate the efficacy of SDR on urinary symptoms and bladder function in cerebral palsy children.

Study design, materials and methods
Pre-operative and post-operative urinary symptoms and urodynamic studies in cerebral palsy children with SDR performed were retrospectively reviewed. Urinary symptoms including urgency, frequency and incontinence and presence of any hydronephrosis were reviewed. Urodynamic study(UDS) parameters including bladder capacity, percentage of expected bladder capacity [bladder capacity / (age+1)x30], detrusor overactivity(DO), incontinence, maximum detrusor pressure (MaxPdet) at DO, compliance, and bladder capacities at first DO and first incontinence were analyzed.

Results
56 SDR was performed from 2003 to 2010, among which 20 patients had complete data in pre and post-operative UDS. All patients had SDR with intraspinal nerve root division from L1 or L2 level down to S1 or S2 level. Mean age of patients was 7.3 years (range 4.5-11.6). Urinary symptoms are recorded in Table 1:

Table 1	Pre SDR	Post SDR	p-value (test)
Urgency / Frequency	16/20 (80%)	1/20 (5%)	p<0.001 (McNemar)
Incontinence at home	11/20 (55%)	4/20 (20%)	p=0.016 (McNemar)

All patients had UDS performed within 4 weeks before SDR, and the mean time from SDR to post-op UDS was 8.4 months. Urodynamic parameters are recorded in Table 2:

Table 2	Pre SDR	Post SDR	p-value (test)
Bladder capacity	180.3 ± 87.6ml	207.3 ± 88.6ml	p=0.158 (T-test)
Percentage of expected bladder capacity	73.1 ± 30.0%	76.3 ± 29.4%	p=0.614 (T-test)
Detrusor overactivity	20/20 (100%)	17/20 (85%)	/
Incontinence at UDS(1)	9/20 (45%)	10/20 (50%)(2)	p=1.000 (McNemar)
MaxPdet at DO	66.7 ± 32.1cmH_2O	68.8 ± 29.1cmH_2O	p=0.796 (T-test)
Bladder capacity at first DO	60.7 ± 45.4ml	67.8 ± 64.1ml	p=0.661 (T-test)
Bladder capacity at first incontinence	69.8 ± 50.8ml	131.6 ± 71.4ml	p=0.016 (T-test)

(1) 3/9(33%) UDS-incontinent patient became UDS-continent after SDR, and 4/11 (36.4%) UDS-continent patient became UDS-incontinent after SDR
(2) Only 3 out of 10 UDS-incontinent children have incontinence at home

The bladder compliance of all 20 patients was normal, and no hydronephrosis was detected.

Interpretation of results
SDR significantly improved urgency, frequency and incontinence. Significant improvement of bladder capacity at first incontinence might explain the improvement of symptoms. Most UDS parameters had no significant improvement, but there were significant discrepancies between UDS findings (DO/incontinence) and daily symptoms.

Concluding message
SDR significantly improved urinary symptoms in cerebral palsy children.

Disclosures
Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** This is a retrospective review of urodynamic investigations done previously for assessment of urinary symptoms in cerebral palsy patients. **Helsinki:** Yes **Informed Consent:** Yes