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URODYNAMIC STUDY IN PAEDIATRIC PATIENTS WITH SPINAL DYSRAPHISM: A PROSPECTIVE STUDY ON FILLING METHODS

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Aim: To compare the study findings from natural fill (NF) and conventional fill (CF) in urodynamic study (UDS) of patients with spinal dysraphism.

Methods: From September 2011 to December 2016, consecutive patients with spinal dysraphism with age ranging from 1 month to 18 years old admitted for UDS were enrolled. Patients were admitted one day prior to UDS with double lumen suprapubic catheter inserted under general anaesthesia. UDS was subsequently performed at least 24 hours after insertion. Bladder filling was performed with preliminary drainage of residual urine. NF was performed with patients given bolus intravenous normal saline at a rate of 10-20ml per kilogram. Regarding CF, warm normal saline was used as filling medium through the suprapubic catheter at a rate of 5% of expected bladder capacity. Detrusor overactivity, voided volume, residual volume, emptying efficiency, end-fill and voiding detrusor pressure were obtained and compared between the two filling methods.

Main Results: 32 patients were recruited. 2 patients were excluded as they failed to void after a long period during the natural fill. 25 (83.3%) out of the remaining 30 patients revealed identical findings regarding the presence or absence of detrusor overactivity ($p < 0.001$). 12 had detrusor overactivity on NF, while there were 13 on CF. The mean bladder capacity, emptying efficiency, end-fill and voiding detrusor pressure calculated from both methods were also similar. (Table 1)

Conclusion: NF and slow fill CF show similar findings in UDS for patients with spinal dysraphism.

Table 1.

Mean capacity (ml)		
Natural fill	173	
Conventional fill	184	p = 0.515

Mean emptying efficiency (%)		
Natural fill	73	
Conventional fill	77	p = 0.170

Mean end-fill detrusor pressure (cmH20)		
Natural fill	6.89	
Conventional fill	7.81	p = 0.435

Mean voiding detrusor pressure (cmH20)		
Natural fill	59.6	
Conventional fill	60.7	p = 0.827