

Neurogenic bladder: A study on identification of risk groups & their therapeutic implications

M. Bajpai

All India Institute of Medical Sciences, India

Aim: Children with neurogenic bladder develop upper tract deterioration and become prone to incontinence with age. While it is known that a high bladder pressure of more than 40 cm water is detrimental to upper urinary tracts, the role of bladder capacity at the time of leaking is not well established. We have sought to identify 'risk groups' with respect to bladder capacity, leak point pressure (LPP) and leak point volume (LPV).

Material and Method: We prospectively analysed patients with neurogenic bladder who underwent clinical and urodynamic evaluation at presentation. Ultrasonography and Micturating Cystourethrogram (MCU) as well as biochemical and isotope studies were carried out for renal function. Analysis of data was done by dividing children into 2 groups based upon their bladder capacity(B.C.) expected for age: Group A-Mean Cystometric bladder Capacity(MCC) less than 50% of Expected bladder capacity(ECC) (n=24); Group B- Mean Cystometric bladder Capacity(MCC) more than 50% of ECC(n=22).

Results: The 46 children were between 5 & 12 yrs of age (mean-7yrs). In group A- Eleven children had LPP <40cm & 13 had > 40 cm H₂O. The corresponding figures for group B were 6 & 16, respectively. None of the patients with LPP of less than 40cm H₂O had GFR below 50ml but 8 had low GFR when LPP was more than 40ml. However, in group A- six patients had GFR below 50ml/minute and 18 above 50ml. In group B, the corresponding figures were 2 and 20. Based upon these data 4 risk groups were identified:

Group 1: Patients with low LPV and low LPP

Group 2: low LPV and high LPP

Group 3: high LPV and low LPP

Group 4: high LPV and high LPP

Conclusion: LPV & functional bladder capacity together with LPP gave better insight into bladder pathology as well as upper tract function. Management of neurogenic bladder should be planned taking both parameters into account. This protocol has the scope for reducing neuromorbidity.

Biography

Prof. M. Bajpai is a Paediatric Surgeon at the All India Institute of Medical Sciences, New Delhi where he has been working since 1984. His special areas of interest are surgical care of the newborn and reconstructive urology.

He was Fellow of the Commonwealth Scholarship Commission in the UK and worked at the Great Ormond Street Hospital for Children, London in 1995-1996. He was awarded the Dr. Kamala Menon Medical Research National Award of the Indian Council of Medical Research on a Surgical technique in Neurosurgery and is the first recipient of Ramanna Fellowship of the Ministry of Science and Technology, Govt. of India. He is on the editorial board and reviewer for many international journals of urology and has several research papers to his credit.

Most notable are his discovery of the genetic propensity of Asian Indian children to renal injury, his work on Molecular markers of early renal injury, and mechanisms of birth defects. Prof. Bajpai is also the Convener of the World Federation of Societies for Paediatric Urology and Executive Editor of 'Progress in Paediatric Urology'. On his Fulbright grant, Prof. Bajpai was a visiting Professor at the Johns Hopkins Medical Institute, Baltimore, in 2005. Designed the AIIMS muscle stimulator used in the surgery of Bladder Exstrophy & Anorectal Malformations. (National Research Development Corporation Registration No. PATENT/4.13.7/96088/96) which is currently in use by most Paediatric surgeons in the country.

bajpai2@hotmail.com