

RISK FACTORS OF REPEATED FEBRILE URINARY TRACT INFECTION DURING LONG-TERM FOLLOW-UP IN ADULT PATIENTS WITH SPINA BIFIDA

Hypothesis / aims of study

Clean intermittent catheterization (CIC) has contributed to improving the life expectancy of patients with spina bifida (SB)¹. However, repeated febrile urinary tract infections (fUTI) could cause deterioration in renal function, affecting the quality of life (QOL) of patients. Therefore, prevention of fUTI is an important element of the urological management of SB patients. Difficulty in management of urinary function in SB patients becomes obvious during the prepubescent and adolescent period. Since the urinary function of SB patients can change as they grow, treatments must be adjusted and patients must understand the pathophysiology of neurogenic bladder and practice self-care, rather than depending on parents and healthcare providers. We have encountered SB patients suffering repeated fUTI in adulthood, even though they have been managed continuously from infancy. In this study, we explored the risk factors of fUTI in adulthood in SB patients who were treated at our institute from infancy to over the age of 18 years.

Study design, materials and methods

A total of 199 SB patients who were admitted to our department from 2000 to 2013 were retrospectively assessed. The patients' medical records, urological, orthopedic and intestinal symptoms, and treatment for urological symptoms were investigated. Twenty-three of the patients in this cohort were followed from infancy to over the age of 18 years.

Results

Five of the 23 patients had suffered a fUTI episode at least once after the age of 18 years. The fUTI+ group and the fUTI- group included 5 male and 0 female, and 6 male and 12 female patients, respectively. The most common voiding management method was CIC (100% and 89% of the patients in the fUTI- group and fUTI+ group, respectively). One patient in the fUTI- group underwent augmentation of the bladder. Anticholinergic treatment was used in 80% of the fUTI+ and 17% of fUTI- group patients, respectively. In univariate analysis, gender (male), vesicoureteral reflex (VUR), use of anti-cholinergic agents and low compliance bladder (low CB) were predictive factors for fUTI in adult SB patients. Multivariate analysis indicated no significant risk factor for fUTI.

Interpretation of results

The risk factors of SB patients suffering fUTI in adulthood are gender, VUR, low CB and use of anticholinergic agents, while incontinence and untethering operations aren't significant risk factors. This implies that the high pressure generated by urine storage in the bladder is the most important risk factor of fUTI in adulthood, even in patients treated with CIC and anticholinergic agents, and who do not have repeated fUTI episodes during childhood. We assume that it is easier to ensure appropriate CIC during student life than in working adults. Only one patient (4.3%) in our cohort underwent bladder augmentation, which is lower than that in previous reports (25%)². This suggests that bladder augmentation should be considered as a remedy for SB patients who have low CB and/or VUR, even in those who receive appropriate CIC and/or are on anticholinergic therapy.

Concluding message

Continuously elevated bladder pressure resulting in a low CB could cause fUTI in adult SB patients. Therefore, in order to prevent renal deterioration in adult SB patients, appropriate intervention to maintain low pressure in the bladder, including bladder augmentation and anticholinergic therapy, is important.

Table 1 Risk factors for febrile UTI

febrile UTI		Y	N	univariate	multivariate
		5	18		
Gender	m	5	6	0.0083*	0.078
	f	0	12		
VUR	y	4	1	0.0044*	0.11
	n	1	17		
Anti-cholinergic	y	4	3	0.0065*	0.74
	n	1	15		
low Bladder compliance (< 10 cm/H ₂ O)	y	4	3	0.0065*	0.67
	n	1	15		

* : p < 0.05

References

1. A Rosano, et al. Infant mortality and cognital anomalies from 1950 to 1994: an international perspective. J Epidemiol Community Health (2000) 54(9): 660-6
2. Malakounides G, et al. Single centre experience: long term outcomes in spina bifida patients. J Pediatr Urol (2013) 9: 585-9

Disclosures

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