409

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RISKS FACTORS FOR RECURRENT URINARY TRACT INFECTIONS IN PATIENTS WITH MULTIPLE SCLEROSIS

Hypothesis / aims of study

Recurrent UTIs (rUTI) have detrimental impact on quality of life of people with multiple sclerosis (pwMS). There is also a significant increase in morbidity and mortality rates. The factors that predispose to rUTIs have been poorly investigated in pwMS. The aim of the study was to investigate the clinico-pathological profile of pwMS suffering from rUTIs and to identify predisposing factors to rUTIs.

Study design, materials and methods

A single-centre retrospective study included 100 consecutive pwMS who attended the department of uro-neurology between October 2014 and February 2015: 50 pwMS with rUTIs and 50 without. The following data were collected: demographics, type and date of onset of MS, EDSS score, medications, past urological history, lower urinary tract symptoms, mode of voiding, upper urinary tract assessment, cystoscopic findings and urodynamics. We investigated if any of those previous demographic, neurological or urological factors predisposed to UTIs by comparing the different variables between the two patient groups. Student's t test and Wilcoxon's sign rank test were used to compare variables, as appropriate, as well as binary logistic regression analysis. A p-value of <0.05 was considered significant.

Results

Table 1 shows the patients' demographic, neurological and urological characteristics. Female gender and worse EDSS score were significant predictive factors for rUTIs ($p=0.03$; OR 2.57 IC= 1.07-6.15 and $p=0.01$; OR 0.71 IC=0.54-0.93, respectively).

Interpretation of results

To the best of our knowledge, the present study is to first which specifically investigates risk factors of rUTIs. Indeed other studies actually focused on spinal cord injury patients.
Only one prévious published study reported risk factors of UTIs (non recuurent) in MS (1). In that study, the authors found that male gender, duration of MS since onset and higher EDSS score were significantly associated to pyelonephritis. In agreement with our results, urodynamic parameters did not appear to be correlated to the infectious risk.

Concluding message

As women and patients with a higher EDSS score appeared to be more prone to rUTIs as results of our study, the physicians should have a low threshold for investigating these patient groups in particular.

References

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Disclosures

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Table 1. Patients' characteristics. Data are expressed in n (%), medians (interquartile) *MS: multiple sclerosis; UTI: urinary tact infections; RRMS: relapse remitting multiple sclerosis; SPMS: secondary progressive MS; PPMS: primary progressive multiple sclerosis; EDSS: expanded disability status scale*

	Group 1 MS with recurrent UTIs, n=50	Group 2 MS without recurrent UTIs, n=50	value
Age, years	49.5 (43.5-60)	48 (41-51.2)	0.28
Gender	39 females/11 males	29 females/21 males	0.03*
Multiple sclerosis			
- Type of MS			0.69
▪ RRMS	28 (56%)	27 (54%)	
▪ SPMS	13 (26%)	17 (34%)	
▪ PPMS	9 (18%)	6 (12%)	
- Duration of MS, years	14.5 (8.7-21.7)	14 (8-20)	0.21
- EDSS score	6.5 (6-7)	6 (3.4-6.5)	0.01*
- Specific treatment			
▪ Interferon	7 (14%)	3 (6%)	
▪ Fingolimod	6 (12%)	3 (6%)	
▪ Copaxone	2 (4%)	8 (16%)	
▪ Fampridine	4 (8%)	2 (4%)	
▪ Tysabri	0	3 (6%)	
Past urological history	Pyelonephritis n=1 (2%) Bladder stones n=1 (2%) Nephrectomy n=1 (2%) Transurethral resection of prostate n=1 (2%) Bladder biopsies n=1 (2%) Urethral stricture n=1 (2%) Anti-incontinence surgery n=2 (4%) Prolapse repair n=1 (2%)	Bladder cancer n=1 (2%) Bladder neck incision n=1 (2%) Testis torsion n=2 (4%) Vasectomy n=1 (2%)	
Lower urinary tract symptoms			
- Type			0.82
▪ Storage symptoms	30 (60%)	31 (62%)	
▪ Voiding symptoms	8 (16%)	6 (12%)	
▪ Mixed symptoms	12 (24%)	13 (26%)	
- Duration of LUTS, years	7 (1.7-13.5)	8 (1.5-15)	0.69
Voiding pattern			0.90
- Spontaneous	20 (40%)	23 (46%)	
- Clean intermittent catheterization	21 (42%)	20 (40%)	
- Indwelling urethral/suprapubic catheters	9 (18%)	7 (14%)	
Upper urinary tract			
- Kidney ultrasound	N=24 (48%) assessed - 21 normal - 3 abnormal: one kidney, ureteral dilation, kidney stones	N=14 (28%) assessed - 12 normal - 2 abnormal: 1 duplex kidney, 1 bilateral hydronephrosis	
- Creatinine, micromoles/L	60 (53-66)	65 (50.5-74.5)	
Cystoscopy	N=28 (56%) assessed - 16 normal - 12 abnormal - trabeculations n=9 - diverticulae n=3	N=15 (30%) assessed - 8 normal - 7 abnormal - trabeculations n=7	
Urodynamics	N=26 (52%) assessed	N=36 (72%) assessed	
- Detrusor overactivity	13	24	0.15
- Loss of compliance	5	1	
- Maximum cystometric capacity, mL	475 (419-583)	391 (245-500.3)	0.21
- Post-voided residual volume, mL	120 (30-200)	122 (28.7-250)	0.89
Urological treatments			
- Antimuscarinics	27	37	
- Mirabegron	5	9	
- Botulinum toxin A	12	18	
- Tibial nerve stimulation	3	1	
Bowels			
- Normal	24 (48%)	30 (60%)	
- Constipation	19 (38%)	16 (32%)	
- Urgency	6 (12%)	4 (8%)	
- Colostomy	1 (2%)		