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#375 Relationship between significant bacteriuria and bladder cancer



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Abstract

Asymptomatic bacteriuria (ABU) may affect the response to adjuvant therapy in non-muscle invasive bladder cancer (NMIBC). The main aim of this study was to examine the effect of recurrent bacteriuria (RB) on the prognosis of NMIBC in women receiving intravesical adjuvant therapy.

Introduction

Bladder cancer (BC) is the most prevalent malignant tumour of the urinary tract (1). While it is more commonly diagnosed in males, the incidence of BC is rising among women in developed countries (2). Nonmuscle-invasive bladder cancer (NMIBC) represents over 70% of all cases and encompasses papillary tumours (Ta), carcinoma-in-situ, and invasion of the lamina propria (T1) (T1) (3).

In women, transitional cell bladder cancer is the most frequent urological tumour, on the other hand, the risk of suffering urinary tract infection (UTI) throughout life is greater than 50%, being the 2nd cause of communityacquired infection. Significant bacteriuria could influence the transitional cell bladder cancer prognosis (1).

Results

Mean age 71.36 y.o, SD±10.61, without differences (p=0.254).

Specific mortality due to cancer of 2.90%.

Chart 1: In the presence of significant bacteriuria, there was a 3 times higher probability of recurrence after transitional cell bladder cancer treatment (p=0.014)*.

Correlation in less recurrences with fewer symptomatic bacteriuria (coefficient 0.161, p=0.059)**.

Chart 2: With positive urine culture, there was 3.13 times more probability of recurrence (p=0.014) **.

There was a negative trend between the presence of symptomatic bacteriuria and lower survival (coefficient -0.165, p=0.053).



Chart 1. Relation between the variables and bad evolution in bladder cancer patients

<u>Aim:</u> Establish the relationship between significant bacteriuria and the transitional cell bladder cancer prognosis.

Methods and Materials

Prospective study of 138 women older than 18 years, treated for transitional cell bladder cancer by resection, transurethral bladder, plus adjuvant endo vesical treatment from 10/04/2012 to 02/13/2022. Significant bacteriuria was a count of >105 CFU/ml of bacteria in the urine culture. Groups: GI (infection group, n=48): patients with significant bacteriuria, GNI (group without infection, n=52): patients who do NOT present significant bacteriuria.

Variables: Age, specific cancer survival, urine culture results, germ in the urine culture, tumor stage T, Symptoms, Bladder cancer stage, adjuvant treatment of bladder cancer, clinical course and recurrence, concomitant diseases, concomitant treatments, toxic habits (smoking), surgical history, allergies.

The analysis was performed using the automatic statistical software IBM SPSS Statistics for Windows, Version 25.0.

Statistical significance was accepted for p<0.05.

Table 1. Patient's baseline characteristics

	GI (n=48)		GNI (n=52)		p-value
Age (years), mean ± SD	71.36 ± 10.61		70.07 ± 10.56		0.254
BodyMassIndex(kg/m2),mean ± SD	26.69 ± 3.48		26.37 ± 3.54		0.339**
ASA	Ν	%	Ν	%	
1	4	8.3%	6	11.5	0.743
П	20	42.67%	40	57.69	0.161
III	24	50%	14	26.92	0.023
IV	0		2	3.85	0.496
Smoking habit					
Never smoker	24	50%	32 (61.54%)		0.314
Smoker	12	25%	16 (30.77%)		0.656
Ex-smoker	12	25%	4 (7.69%)		0.028



Discussion

Significant bacteriuria is related to the prognosis of transitional cell bladder cancer: the significant bacteriuria increases clinical and histopathological grade in recurrences and the probability of tumour progression. Specific mortality due to cancer increased in the presence of significant bacteriuria.

Pyuria has been proposed as a potential predictor of treatment response in several studies involving patients treated or not with Bacillus Calmette-Guérin (BCG). Pyuria has also been associated with increased tumour recurrence (4). While our study did not specifically examine pyuria, we did observe more frequently the presence of leukocyturia in the GI group, who exhibited better outcomes.



Conclusions

Table 2. Logistic regression analysis for good evolution.

Variables	RR	95% I.C		P-value	
		Lower	Upper		
Evolution time	0.982	0.968	0.016	0.997	
between surgery					
and biopsy					
Dyslipidaemia	27.985	3.184	0.003	245.961	
Abdominal surgical	0.283	0.093	0.027	0.869	
Pelvic surgical	6.429	2.181	0.001	18.949	
Pain	5.669	1.287	0.022	24.979	
Recurrent	0.136	0.026	0.018	0.715	
bacteriuria					
Cytology	0.054	0.009	0.001	0.324	
leukocyturia					
Cystoscopy	0.095	0.014	0.018	0.664	

Significant bacteriuria is associated with a poorer prognosis in transitional cell carcinoma of the bladder: significant bacteriuria is associated with a worse clinical course, a higher probability of increasing histopathological grade in recurrences, and a greater chance of tumor progression. Significant bacteriuria is associated with a higher probability of positive urine cytology for malignant cells in follow-up for transitional cell carcinoma of the bladder.

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