

Is bladder ischemia a cause of lower urinary tract symptoms (LUTS)? Observations in patients with marked pelvic arterial hypoperfusion

João Rocha-Neves, José Oliveira-Pinto, Joel Sousa, Daniel Silva, Tiago Antunes-Lopes, Carlos Silva, Francisco Cruz and José Fernando Teixeira.

Introduction

The aim was to investigate the impact of internal iliac arteries chronic total occlusion on lower urinary tract symptoms and clinical parameters in patients with peripheral artery disease.

Urinary levels of neurotrophic growth factor (NGF) and Brain-derived nerve growth factor (BDNF) are used as markers of urotelial dysfunction.

Materials and methods:

14 male patients (IIAO) with known unilateral (n=9) (UIIAO) and bilateral (n=5) (BIIAO) chronic total occlusion of the internal iliac arteries were consecutively selected. Fourteen male, age-matched patients without known internal iliac arteries disease were selected as controls.

Each participant was examined with routine examination including measurement of various data: (1) voided volume (VV), maximum and medium urinary flow rate on free uroflowmetry, (2) postvoid residual urine volume and prostate volume using abdominal and transrectal ultrasound, (3) International Prostate Symptom Score (IPSS), (4) urinary creatinine (UCr), NGF and BDNF.

Results:

Coronary artery disease was significantly more prevalent in the IIAO group. Cerebrovascular disease was significantly more prevalent in the control group.

No additional significant differences were found in baseline characteristics between groups.

No significant differences were found between the group UIIAO and the controls in the parameters studied.

The group with BIIAO and UIAO demonstrated a significantly worse IPSS score against the control group (p=0,009).

Urinary NGF concentration was significantly increased in the BIIAAO (p=0,046).

Conclusions

Patency of one internal iliac artery is sufficient to avoid the development of lower urinary tract clinical and laboratory changes.

Bilateral occlusion of the internal iliac arteries significantly relates with the development of LUTS. Increased urinary excretion of NGF probably results from urotelial irritation due to ischemia.

	Control (n=13)	UIIAO (n=9)	BIIAO (n=5)	
idade	69,17 ± 7,930	70,78 ± 9,692	61,8 ± 4,025	0,145
FRCV				
1 - HTA	92% (12)	100% (9)	80% (4)	0,402
2 - DM2	38,5% (5)	33,3% (3)	20% (1)	0,69
3 - Dislipidemia	92% (12)	100% (9)	40% (2)	0,036*
4 - Obesidade	85% (11)	44% (4)	20% (1)	0,034*
5 - Tabagismo	8% (1)	33,3% (3)	0	0,166
DCV	46% (6)	11% (1)	20% (1)	0,136
Dcoronária	38,5% (5)	0%	20% (1)	0,043*
Patologia GU	38,5% (5)	44% (4)	0	0,193

Tab. 1 : Population characteristics

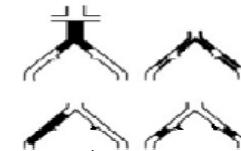
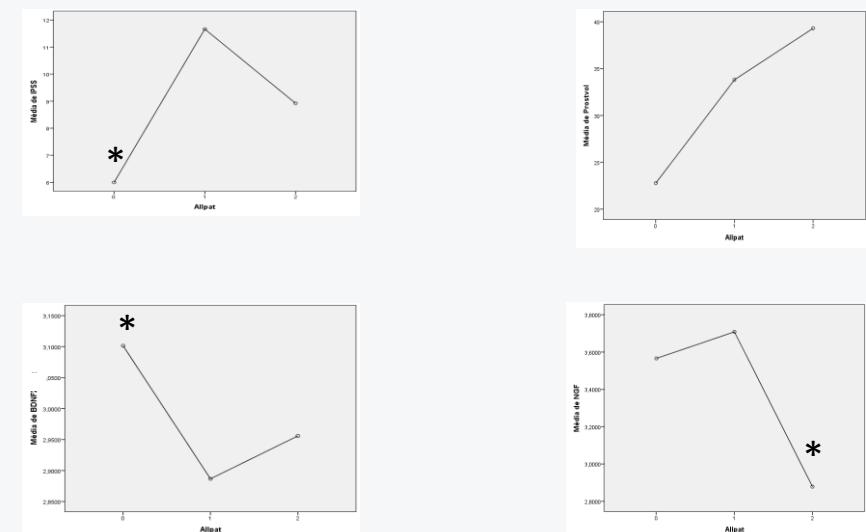


Fig. 2: TASC II – TASC D aorto-iliac classification – occlusion of the internal iliac arteries



Graphs 1, 2, 3, 4: The group with BIIAO and UIAO demonstrated a significantly worse IPSS score against the control group (p=0,009).

Urinary NGF concentration was significantly increased in the BIIAAO (p=0,046).

No differences were found in prostate volume.