250

Catarin M [1], Bruschini H[1], Manzano G [1], Giuliano L[1], Nunes K[1], Cavalcanti G[1], Arruda H[1], Srougi M[1], Nóbrega J[1]
1. Federal University of São Paulo

SENSORY IMPAIRMENT OF MEMBRANOUS URETHRA – A POSSIBLE CAUSE FOR EVENTUAL URINE DROP AFTER RADICAL PROSTATECTOMY.

Hypothesis / aims of study:
Many patients persist with eventual small urine leakage after nerve sparing radical prostatectomy (NSRP) apart from preservation of good continence and voluntary control. We studied the sensory innervation of posterior urethra and penile skin, motor innervation of external urethral sphincter and external anal sphincter, by means of neurophysiologic tests in patients with prostate cancer, pre and six months post-radical prostatectomy.

Study design, materials and methods
From February 2003 to February 2005, we developed a controlled prospective study with 34 male patients with prostate cancer, after informed consent according to the institutional ethics committee. All have been considered neurologically normal and evaluated regarding urinary continence protocol (UCLA), and then submitted to neurophysiologic evaluation of the pelvic floor through sensory threshold and latencies of the pudendo-urethral (PU), and urethro-anal (UA) reflexes (1) previously to any prostate cancer treatment (2). The tests were repeated six months later to NSRP. We adopted statistical significance for T-Test and Sign Test $p<0.05$.

Results
A functional sensory modification of the membranous urethra was found in 29 out of 34 patients six months post-NSRP (85.29%), suggesting an impairment of afferent visceral innervation in that region, by means of an increase on the urethro-anal reflex threshold and latency ($p<0.001$ and $p=0.026$ respectively) and pudendo-urethral reflex threshold and latency preservation ($p=0.243$ and 0.201 respectively) (Table 1). In 20 continent patients with eventual insignificant urine drop post-NSRP and not needing pads, 19 had the urethro-anal reflex threshold and latency increased ($p=0.001$ and $p=0.003$ respectively). In another 11 totally dry patients, 7 had some sensory impairment of the membranous urethra by means of a decrease on the UA threshold and latency ($p=0.061$ and $p=1.00$ respectively). Three patients were considered incontinent after 6 months, all of them with of posterior urethral sensory alterations.

Table 1: Comparison of pre and post-NSRP tests (T Test).

NEUROPHYSIOLOGICAL TEST		**MEAN BEFORE**	**MEAN AFTER**	**p VALUE**
PUDENDO-URETHRAL	THRESHOLD	2.63	2.90	p = 0.243
	LATENCY	30.20	30.65	p = 0.201
URETHRO-ANAL	**THRESHOLD**	**4.27**	**11.06**	**p < 0.001**
	LATENCY	*****	*****	**p = 0.026**

* Sign test

Interpretation of results
A sensory impairment of the membranous urethra was a very common finding after NSRP (85.29% of the patients). All the others neurophysiological pelvic parameters were considered normal after the surgery.

Concluding message
We believe that functional sensory denervation of intra-membranous urethra post-NSRP is a new concept in the physiopathology of the male post-NSRP eventual minor urine drop

leakage in patients considered continent, and is possibly related to alteration of the reflex self regulation mechanism of urinary continence (urethral sentinel sensory mechanism), that alerts for urine escape into urethra and triggers an involuntary urethral sphincter reflex contraction, avoiding urine drop.

References

1. A method for analysis of pudendal nerve integrity through penile dorsal nerve stimulation and intraurethral surface electrode registration. Neurourol urodyn 23(5/6): 585, 2004.
2. A neurophysiological study of patients undergoing radical prostatectomy. Scand J Urol Nephrol 23: 267-73, 1989.

FUNDING: **FAPESP**