

PELVIC FLOOR MUSCLE FUNCTION PREDICTS SEVERITY OF URINARY INCONTINENCE IN MEN.

Hypothesis / aims of study

Urinary incontinence (UI) after radical prostatectomy is an important comorbidity leading to negative impact on quality of life [1]. Associated with other structures, pelvic floor muscles (PFM) are responsible for the urinary continence mechanism. The thickness of the pelvic diaphragm and the levator ani are predictive of post-prostatectomy incontinence [2]. Therefore, PFM function might also be associated with UI after radical prostatectomy. We hypothesized that PFM function is a predictor of the severity of UI after radical prostatectomy. The objective of the study was to investigate, among other predictors, the relation between PFM function and the severity of UI after radical prostatectomy. Our results might contribute to the understanding of the influence of the PFM function on the UI in man leading to better patient assessment and treatment.

Study design, materials and methods

This prospective study investigated 83 men who underwent radical prostatectomy in two urology centers. Sociodemographic and clinical data regarding the presence of UI and the most known risk factors for UI in men who underwent prostatectomy were collected from questionnaires and from hospital records. UI was defined as any leakage of urine, according to ICS [1]. The pelvic floor muscle function were investigated by digital palpation of the pelvic floor muscles and by the Peritron®, by three physiotherapists experienced in the evaluation of PFM function. They evaluated the capacity of pelvic floor muscles contraction, coordination, strength, and resistance. For all functional measurements a reliability between raters of at least 80% were granted. The severity of UI were investigated by the 24h pad-test. All data were collected approximately 8 days after catheter removal. Descriptive statistics were used to characterize the sample regarding to sociodemographic, clinical and functional data. Uni and multiregression analyses were used to investigate clinical and functional data as predictors of the severity of UI, at a significance level of 5%.

Results

All participants were incontinent at the time of data collection (about the 11th day after urethral catheter removal). Mean age was 63,4 years (SD = 6,65years). Mean values were: PSA = 10,25 ng/ml (SD = 10,16ng/ml), Gleason score biopsy= 6,49 (SD = 0,71), prostatic weight = 38,46g (SD = 14,35g), and mean days with catheter = 11,06 (SD = 3,35). The majority of participants was sedentary (71,1%), had pathological tumor stage pT2 (62,9%), had nerve sparing (62,3%) and urine loss during efforts (86,7%). The mean urine loss at the 24-h pad test was 341,85g (SD = 491,53g). Regarding the PFM function, 89,2% were able to contract the PFM but only 26,5% presented PFM coordination. The mean PFM strength was 101,31 cmH₂O (SD = 66,04 cmH₂O) and the mean PFM resistance was 11,7 sec (SD = 9,30sec). Among the 16 clinical and functional variables investigated, 8 were selected from the univariate analysis: PFM strength and resistance, days with catheter, Gleason, prostatic weight, smoking, fecal incontinence and age. From those, multivariate analyses identified PFM resistance (p = 0,001) and age (p = 0,003), or PFM strength (p=0,014) and age (p=0,001) as predictors of the severity of UI in men who underwent radical prostatectomy.

Interpretation of results

The sample characteristics were similar to the other studies that investigated risk factors for UI in man who underwent radical prostatectomy[3]. The majority of participants were able to contract the PFM but only few of them performed this contraction correctly (with adequate coordination). Associated with age, PFM function is a strong predictor of severity of UI in men who underwent radical prostatectomy. These results indicate that asking patients to contract the pelvic floor muscles as a therapeutic approach might not be effective to improve the function of those muscles. Also, specific evaluation of the PFM function should be mandatory before any PFM training in man with UI after radical prostatectomy.

Concluding message

Pelvic floor muscle function is a predictor of the severity of UI in men who underwent radical prostatectomy and should be assessed before the PFM training to treat UI.

References

1. ABRAMS, P. et al. 4th International Consultation on Incontinence. Paris. July 5-8 2008. 4th edition, 2009
2. SONG, C. et al. Relationship between the integrity of the pelvic floor muscles and early recovery of continence after radical prostatectomy. The Journal of Urology. U.S.A, v. 178, p. 208-211, maio. 2007.
3. EASTHAM, J.A. et al. Risk factors for urinary incontinence after radical prostatectomy. The Journal of Urology. U.S.A. v.156, n. 5, p. 1707-13, nov. 1996.

Disclosures

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