

DECLINED URETHRAL SPHINCTER FUNCTION RELATED TO AGING CONTRIBUTES TO URINARY INCONTINENCE AFTER RADICAL PROSTATECTOMY

Aims of study

Urinary incontinence is one of the distressing complications after radical prostatectomy. In the era of aging society, an increasing number of radical prostatectomy has been performed to elderly patients. Although the surgical technique should be an important factor related to the occurrence of post-operative urinary incontinence, it is important to investigate other contributing factors related to aging. In the present study, we compared the urethral sphincter function of elderly patients with younger ones undergoing laparoscopic radical prostatectomy.

Materials and methods

The records of pre- and post-operative urodynamic studies were retrospectively investigated in 195 patients who underwent laparoscopic radical prostatectomy between January 2001 and January 2008. The data on urethral pressure profile were analyzed by subdividing the patients into two groups; group 1 comprised 73 men aged 70 years or older and group 2 comprised 122 men younger than 70 years. We compared the incidence of post-operative incontinence and the urethral sphincter function between the two groups. The urethral sphincter function was assessed in terms of maximum urethral closing pressure (MUCP) and functional profile length (FPL), measured on urethral pressure profile before and 3 months after surgery, using a 6Fr micro-tip transducer catheter when the bladder was empty. Continence was defined as no complaint of incontinent episode and no pad use in the present study. Significant differences were statistically investigated using Chi square test and Student's t-test.

Results

Mean age was 73.1 years in group 1 and 61.9 years in group 2. There was no significant difference in pre-operative mean prostate-specific antigen (PSA) levels between group 1 and group 2, being 14.4 ng/mL and 12.3 ng/mL respectively. No significant difference was noted in clinical stage of prostate cancer between the two groups. Mean weight of removed prostate was significantly bigger in group 1 (39.5 gm) than in group 2 (32.0 gm). The continence rates in group 1 at 3 and 12 months after surgery were 24.9% and 72.9%, respectively, while those in group 2 were 47.4% and 91.8%, respectively. Continence rate in group 1 was significantly lower as compared with group 2, both at 3 and 12 months after surgery. On urethral pressure profile, pre-operative mean MUCP/ FPL was 54.6cmH₂O/ 43.7mm in group 1, and 66.0cmH₂O/ 39.6mm in group 2. Post-operative mean MUCP/ FPL was 32.6cmH₂O/ 21.3mm in group 1, and 41.2cmH₂O/ 23.8mm in group 2. Mean MUCP and FPL were significantly declined after surgery in both groups. Mean MUCP was significantly lower in group 1 than in group 2 both pre- and post-operatively. On the other hand, there was no significant difference in FPL between the two groups, both pre- and post-operatively.

	Group 1 (pt ≥70 years)	Group 2 (pt <70 years)	p
Number of pts	73	122	
Mean age	73.1	61.9	<0.01
Continence rate at 3 months (%)	24.9	47.4	<0.01
Continence rate at 12 months (%)	72.9	91.8	<0.01
Mean pre-op MUCP (cmH ₂ O)	54.6	66.0	0.03
Mean post-op MUCP (cmH ₂ O)	32.6	41.2	0.04
Mean pre-op FPL (mm)	43.7	39.6	0.17
Mean post-op FPL (mm)	21.3	23.8	0.24
Mean removed prostate weight (gm)	39.5	32.0	<0.01

Continence rates and post-operative changes of urethral function in the elderly (group 1) and the younger (group 2) patients.

Interpretation of results

In the elderly group, continence rate was significantly lower than in the younger group. Pre-operative impaired urethral function was considered to be closely associated with higher rate of post-operative urinary incontinence in the elderly group. Since significant difference was noted in MUCP but not in FPL pre-operatively between the two groups, it is suggested that the impaired tension of the urethral sphincter associated with aging would be an important factor contributing to post-operative incontinence rather than the urethral profile length which may be affected by the prostatic size.

Concluding message

The declined urethral function possibly related with aging, in terms of reduced urethral sphincter tension, might be a contributing factor to post-operative urinary incontinence after radical prostatectomy.

Specify source of funding or grant	None
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	the ethics committee of Nagoya university graduate school of medicine
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes