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POSTPROSTATECTOMY INCONTINENCE: SIGNIFICANCE OF THE PRE-OPERATIVE URETHRAL PRESSURE PROFILE AND THE ROLE OF PHYSIOTHERAPY

Hypothesis / aims of study

Urinary incontinence is a major complication of radical retropubic prostate surgery. Its occurrence can, at least partly, be ascribed to a diminished urethral sphincter function. In a prospective study we examined the effect of a radical prostatectomy on the urethral closing function and the role that pelvic floor physiotherapy can play in the recovery of continence.

Study design, materials and methods

A randomised study, approved by the institutional ethical committee, of the effect of physiotherapy-guided pelvic floor exercises (≤ 9 sessions) versus exercises instructed to patients through an information folder on incontinence after a radical retropubic prostatectomy (RP) was done at our department from February 2000 to December 2003. Patients listed for such an operation and living within about 75 km from our hospital were asked to participate. Men who gave their informed consent were randomised into one of both treatment arms if they were incontinent one week after removal of the stenting transurethral catheter, i.e., if they lost at least 1 gram of urine in the ICS 1-hour pad test or 4 grams in a 24-hour pad test. Patients with positive lymph nodes, however, were excluded. The 1-hour and 24-hour pad tests were repeated 26 weeks after catheter removal. A urodynamic study including urethral pressure profilometry (UPP) before the operation and 26 weeks after catheter removal was also part of the study. The Brown-Wickham method (open-ended 5F catheter, infusion rate 3 ml/minute, withdrawal speed 2 mm/second) was used for the UPP's. Normally, two measurements were done. The mean values of the functional profile length (FPL) and the maximum urethral closing pressure (MUCP) were used for the analysis. Nonparametric tests were used for statistical analysis. Results are given as median values and interquartile ranges.

Results

Of the 75 patients who gave informed consent, 5 were excluded because of positive lymph nodes (3 men) or the absence of incontinence (2). 70 Patients thus enrolled the study, 7 of whom dropped out because of bladder neck contracture (4), withdrawal of consent (2) or lack of understanding (1, who was probably an illiterate person). The 63 men who completed the study aged 64 (61 - 67) years at surgery. 31 And 32 men were assigned to the physiotherapy group and the folder group, respectively. 10 (32%) And 9 (28%) of them had regained continence at the 26-weeks follow-up mark. The continence rates obtained in both treatment groups were not significantly different (p=0.72 in the chi-square test).

The results of the 1-hour and 24-hour pad tests 1 and 26 weeks after catheter removal, categorized to treatment group and symptomatic result after 26 weeks, are summarized in Tables I and II.

The UPP data was incomplete in 6 men, mainly because catheterisation was considered too painful or the results seemed unreliable. The FPL and the MUCP highly significantly decreased from 5.6 (4.5 – 6.3) to 1.9 (1.4 – 2.5) cm and from 50 (43 – 64) to 32 (25 – 46) cm H2O, respectively, in the 57 men who underwent the UPP's before surgery as well as after 26 weeks. That means that in this patient group the RP took away an average of 66% of the FPL and 36% of the MUCP. In this respect, no significant differences were found between the two treatment arms. In addition, the FPL values before surgery as well as after 26 weeks were not significantly different between the men who had regained continence and those who still were incontinent. The MUCP values, however, were significantly different (p=0.002) in these two groups (Table III).

Table I. Results of the 1-hour pad test (in grams)			
	1 Week	26 Weeks	Improvement
All (63)	24 (4-144)	2 (0-4)	14 (2-132)
Physiotherapy (31)	24 (6-132)	2 (0-4)	10 (2-100)
Folder (32)	29 (4-158) #	2 (0-4) #	15 (1-140) #
Continent (19)	2 (2-10)	0	2 (2-10)
Incontinent (44)	56 (13-187) *	2 (2-6) *	38 (2-157) *

Table II. Results of the 24-hour pad test (in grams) In brackets the percentage of men losing less than 10 grams					
	1 Week		26 Weeks		Improvement
All (63)	214 (58-574)	[6%]	6 (0-24)	[54%]	187 (32-532)
Physiotherapy (31)	214 (58-628)	[6%]	10 (0-25)	[48%]	164 (30-532)
Folder (32)	211 (55-528)	[6%]	6 (0-23) #	[59%]	194 (41-510) #
Continent (19)	30 (16-200)	[21%]	0	[100%]	30 (16-200)
Incontinent (44)	377 (141-650) *	[0%]	17 (6-40) *	[34%]	279 (95-606) *

Table III. MUCP values (in cm H2O)				
	Pre-operative	26 Weeks	Decrease	Relative decrease (%)
All (57)	50 (43-64)	32 (25-46)	21 (9-27)	35 (21-51)
Continent (15)	65 (50-75)	42 (36-52)	21 (7-35)	33 (18-46)
Incontinent (42)	46 (41-58) *	30 (23-44) *	21 (9-26)	38 (23-52) *

#	not significantly different from the physiotherapy group
*	significantly different from those who had become continent

Interpretation of results

The symptomatic results with respect to regaining continence were not significantly different between both treatment groups. As the degree of incontinence at the start of treatment and the UPP parameter values were not significantly different either, it must be concluded that an information folder is as effective as physiotherapy. As the pre- and post-operative FPL values were not significantly different between those who still were incontinent after 26 weeks and those who had become continent, the length of the UPP seems to be relatively unimportant in this respect. The MUCP, however, appears to be a relevant factor: the pre- and post-operative values were significantly lower in the group of men who had remained incontinent.

Concluding message

Postprostatectomy incontinence occurs in nearly all patients, but considerably decreases in the course of the first half year, with 30% of the men becoming continent. A smaller loss of urine during a pad test shortly after the operation is associated with a higher probability to become continent. Physiotherapy has no additional value in comparison with an information folder. An RP takes away about 2/3 of the length of the UPP and 1/3 of its height. Patients with a low pre-operative UPP are at a higher risk to remain incontinent. It might therefore be considered to treat such patients by other treatment modalities rather than by surgery.