

THE CHANGES IN URINATION STATUS AND INTERNATIONAL PROSTATE SYMPTOM SCORE FOLLOWING RETROPUBIC RADICAL PROSTATECTOMY

Hypothesis / aims of study

Retropubic radical prostatectomy is considered an effective treatment for localized prostate cancer. On the other hand, it is well known that some lower urinary tract symptoms are common in patients with prostate cancer who undergo radical prostatectomy and that these symptoms significantly affect their quality of life (QOL) [1]. There are a number of reports describing lower urinary tract symptoms in addition to incontinence but there are few reports about the longitudinal study of urination status and urinary symptoms. Thus, we investigated uroflowmetry, the International Symptom Score (IPSS) and the QOL index during longitudinal follow up after radical prostatectomy and analysed the data. On the basis of this analysis, we present the results of a longitudinal study that notes the changes in urination status and urinary symptoms following radical prostatectomy.

Study design, materials and methods

Between January 2005 and January 2008, the cases of 212 patients with prostate cancer who underwent radical prostatectomy at our facility were reviewed. Twenty four cases (11%) were administered anti-cholinergic medicine for stress incontinence 6 months after the operation. We therefore defined these cases as the incontinence group, and this group was excluded in this study. The average age at the time of operation was 68.9 (43-79) years old. The median PSA at diagnosis was 13.5 (2.7-132.5)ng/ml. All patients underwent retropubic radical prostatectomy via a modified Walsh technique. Uroflowmetry including urinary flow rate, voided volume and residual urine volume were measured before surgery, then were subsequently measured 2 weeks, 6 months and 12 months after surgery. At the same time, IPSS and QOL index were recorded. Urinary flow rates and voided volume were measured using URODYNA1000 (MEDTORONIC, Co). Eight cases (4%) required surgical treatment for urethral strictures. A few patients who did not have organ-confined disease had radiotherapy on their prostate bed.

Statistical analyses were performed using the analysis of variance (ANOVA). In order to determine the statistical significance between groups, analyses were performed using Fisher's test. Data is presented as the mean plus or minus standard error with significance considered at $p < 0.05$.

Results

Uroflowmetry

The maximal flow rate (9.8ml/s) and the voided volume (178ml) at 2 weeks after the operation were significantly lower than the values in the pre-operative data (15.1 ml/s and 255ml). However, the maximal flow rate (16.9ml/s) and the voided volume (291ml) 6 months or later after the operation were significantly higher than the values in the pre-operative data (15.1ml/s and 255ml). The residual urine volume (41ml) 2 weeks or later after the operation was significantly lower than the values in the pre-operative data (34.8, 27.9 and 28.2ml) (**Fig.1**).

IPSS and QOL index

The total IPSS (13.6) recorded 2 weeks after the operation was significantly higher than the pre-operative IPSS (9.5). However, there was no significant difference between the total IPSS (9.3) 6 months after the operation and the pre-operative IPSS (9.5), while the total IPSS (7.6) 12 months after the operation was significantly lower than the pre-operative IPSS (9.5). Meanwhile, the QOL index (3.8) 2 weeks after the operation was significantly higher than the pre-operative QOL index (2.9). However, the QOL index (2.7 and 2.6) 6 months or later after the operation showed no significant difference from the pre-operative data (2.9) (**Fig. 2**). Concerning each component of IPSS, 2 weeks after the operation, emptying (1.7), intermittency (1.6), slow stream (3.0) and straining (2.4) were significantly higher than in the pre-operative data (1.2, 1.0, 1.9 and 1.0). On the other hand, the other component scores were not significantly different. 6 months or later after the operation, intermittency (0.6) and slow stream (1.4) were significantly lower than in the pre-operative data (1.0 and 1.9), while the other component scores showed no significant difference.

Interpretation of results

A worsened maximal flow rate during the early post-operative period was consistent with other report [2]. We feel that the reason for the worsening may be that in addition to a decrease in voided volume, a temporally hardened bladder causes lower bladder compliance and a dwelling urethral catheter affects the voiding function.

The result of improved maximal flow rate in the later post-operative period was also consistent with other report [2]. We surmise that this increase may be due to a combination of radical prostatectomy caused by the removal of a bladder outlet obstruction and a gradual increase in bladder compliance.

Our study also showed that obstructive IPSS symptoms improved significantly more than irritative IPSS symptoms in the late post-operative period. We speculate that the decrease in the maximal flow rate and voided volume in addition to stress incontinence worsened subjects' urinary symptoms in the early post-operative period, but an increase in maximal flow rate and the disappearance of incontinence improved subject urinary symptoms in the late post-operative late period.

Concluding message

In conclusion, the findings from the post-operative uroflowmetrogram and evaluation of both the IPSS and the QOL index showed a temporarily worsening in urination status, but an improvement in the same status 6 months or later after radical prostatectomy. Compared with obstructive and irritative symptoms in each component of IPSS, obstructive symptoms showed a more significant improvement than irritative symptoms 6 months or later after radical prostatectomy. This study suggested that radical prostatectomy offered eventual improvements in both voiding function and urinary symptoms.

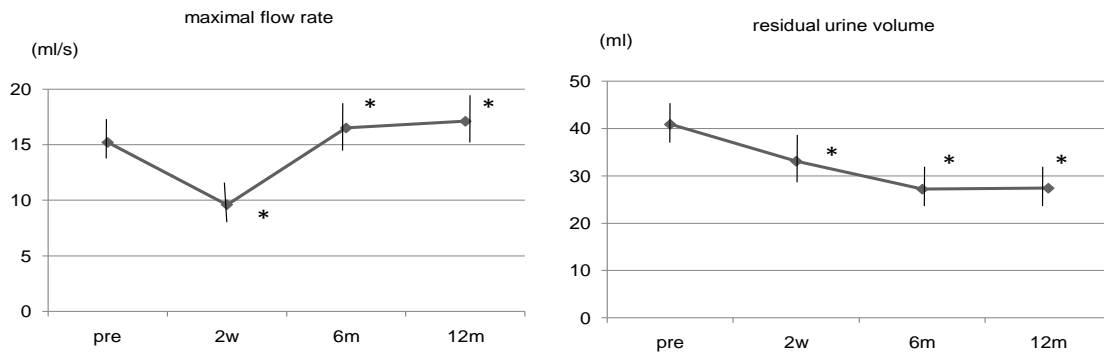


Figure 1

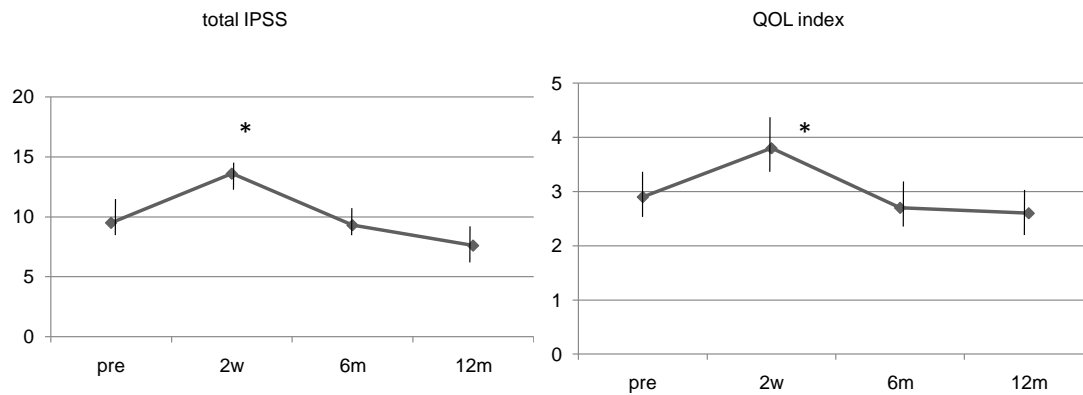


Figure 2

References

1. Schwartz EJ, Lepor H. Radical prostatectomy reduces symptom scores and improves quality of life in men with moderate and severe lower urinary tract symptoms. J Urol. 161: 1185-8, 1999
2. Masters JG, Rice ML. Improvement in urinary symptoms after radical prostatectomy: a prospective evaluation of flow rates and symptom scores. BJU Int. 91:795-7, 2003

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