THE EFFECT OF MONOPOLAR TRANSURETHRAL RESECTION OF PROSTATE ON ERECTILE DYSFUNTIONS

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ABSTRACT

Purpose: The aim of this study was to investigate the effect of transurethral resection of the prostate (TURP) on erectile function.

Materials and Methods: A total of 108 patients treated with TURP were retrospectively evaluated. All patients were evaluated 1, 3, and 6 months after TURP by use of the International Prostate Symptom Score (IPSS), International Index of Erectile Function (IIEF), peak urinary flow rate (Qmax), and post-void residual urine (PVR).

Results: One and 3 months after TURP, the erectile function domain score of the IIEF was significantly decreased. However, after 6 months, there was no longer a significant decrease in the erectile function domain score. The change in erectile function was compared with the IPSS score. There was no statistically significant correlation, but patients who had better voiding symptoms after TURP had improved erectile function.

Conclusions: Our study showed that there was a significant decrease in erectile function for 3 months after TURP. However, no significant change in erectile function was observed 6 months after TURP.

Key Words: Erectile dysfunction; Transurethral resection of prostate

INTRODUCTION

Sexual function is accepted to be an important domain of quality of life, which tends to diminish with increas ing age.[1] Population surveys have shown high levels of sexual dysfunction in men over the age of 50 years.[2] Lower urinary tract symptoms, such as reduced stream and increased frequency, are common in older men and are often related to enlargement of the prostate gland secondary to benign prostatic hyperplasia. Recent evidence has suggested a link between symptoms and sexual dysfunction in men both in the community and attending urology clinics.[3] Standard surgery (transurethral resection of the prostate - TURP) has been reported to cause sexual dysfunction, with nearly three quarters of men experiencing retrograde ejaculation and over 13% experiencing impotence after standard surgery according to a systematic review.[4]

Although some patients with preexisting ED reported improved erectile function after TURP. Thus, recent evidence from both community and clinical trials has suggested a link between BPH-induced LUTS and erectile function.[5]

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The aim of this study was to evaluate erectile function after TURP in a hospital by use of the validated International Index of Erectile Function (IIEF). A second aim was to identify the possible factors associated with the occurrence of ED in this particular patient cohort.

MATERIALS AND METHODS

Between January 2011 and May, 2012, total of 168 patients who underwent TURP for enlarged prostate and who were sexually active before and after the procedure were enrolled for retrospective evaluation of ED after TURP. Patients who were not sexually active, evidence of prostate cancer, neuropathic bladder function, serum creatinine concentration > 2.5 mg/dl were excluded from the study.

In all patients medical history, prostate-specific antigen (PSA), flow rate, residual urine, and International Prostate Symptom Score (IPSS) were recorded for those who presented without a catheter. Finally, the erectile function of the patient was evaluated according to the Internaltional Index of Erectile Dysfunction (IIEF) questionnaire. The flow rate, IPSS, and IIEF questionnaire were reevaluated at 1,3, and 6 months postoperatively.

Monopolar TURP was performed by a consultant urologist. As much prostate adenomatous tissue as possible was removed as far as the surgical capsule. A 26 French resectoscope with a continuous irrigation system was used. A 22 French 3 way Foley catheter was inserted in all patients and was removed when hematuria sufficiently diminished. A voiding trial was performed after catheter removal, and if successful, the patient was discharged home.

We used the IIEF score, which was calculated at the time of admission as a baseline and 1, 3 and 6 months after the operation, to compare the change in erectile function. The IIEF 5-Item self reported questionnaire was used instead of 15 Item questionnaire. The five items of sexual functions evaluated were Desire, Erection, Intercourse, Ejaculation/Orgasm and overall satisfaction. Because the patients in this study had generally decreased sexual activities, there was a limited correlation between erectile function itself and satisfaction or orgasm. For this reason, the study focused on the EF domain of the IIEF.

The patients were divided into 3 groups as follows: patients whose sexual functions were decreased by 5 points were defined as the impaired erectile function group, those who had more than 5 points were defined as the improved erectile function group, and those between the two groups mentioned above were defined as no influence on erectile function group

We analyzed the data with the Statistical Package for the Social Sciences 16.0 for Windows (SPSS Inc., Chicago, IL, USA). Comparisons of clinical characteristics and parameters were made by using the paired t-test and chi-square test. For all statistical comparisons, significance was considered at $p<0.05$.

RESULTS

Out of total 168 patients, 38 patients were excluded from the analysis, including 4 patients who were diagnosed with prostate carcinoma after surgery, 5 patients developed urethral stricture after TURP and underwent Optical Urethrotomy, and 29 Patients who refused to complete the IIEF 5 Item questionnaire on follow up. The mean patient age was 59.8 years ± 5.62 (range, 55-76 years), the average amount of resected tissue was 36.5 gram (range, 20 - 68 gram), and the mean resection time was 45 minutes (range, 30 - 90 minutes). The patients characteristics are listed in Table 2.

Before and 6 months after TURP, the mean residual urine volume was reduced from 110.1 ± 26 ml to 46.0 ± 3.3 ml ($p<0.01$). The maximum flow rate improved from 10.1 ± 5.4 ml/s to 15.5 ± 8.7 ml/s ($p<0.01$). The mean IPSS score decreased from 18.7 ± 8.6 to 7.8 ± 8.1 ($p<0.01$). As shown in the table, the patients' symptoms improved greatly after TURP (Table 3).

In the analysis at 1 and 3 months after TURP, the

Table 1: The International Index of Erectile Function (IIEF-5) Questionnaire

Over the past 6 months:					
1. How do you rate your confidence that you could get and keep an erection?	Very low 1	Low 2	Moderate 3	High 4	Very high 5
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration?	Almost never/ never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always/ always 5
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?	Almost never/ never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time)4	Almost always/ always 5
4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	Extremely difficult 1	Very difficult 2	Difficult 3	Slightly difficult 4	Not difficult 5
5. When you attempted sexual intercourse, how often was it satisfactory for you?	Almost never/ never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always/ always 5

IIEF-5 scoring:
The IIEF-5 score is the sum of the ordinal responses to the 5 items.
22-25: No erectile dysfunction
17-21: Mild erectile dysfunction
12-16: Mild to moderate erectile dysfunction
08-11: Moderate erectile dysfunction
05-07: Severe erectile dysfunction

Table 2: Characteristics of the Patients

Number of Patients	130
Age	59.8 ± 5.62 (Range 55-76) years
Prostate Volume	47.25 ± 6.6 (Range 32 – 106) ml
PSA Vlaue	4.19 ± 1.4 (Range 0.7 – 11.3) ng/dl
IPSS Score	18.1 ± 8.6 (Range 19 – 32)

Table 3: Changes in Patients before TURP and 6 months after TURP

	Before TURP	After TURP	p-value
IPSS Score	18.7	7.8	<0.0001
Qmax (ml/s)	10.1	15.5	0.01
Residual Urine	110.1	46.0	<0.001

thrombosis of the cavernosal arteries, venous leakage, and injury to the nerve tracts[7,8].

In fact, there are many reports of impaired erectile function after TURP. Many studies have reported that ED after TURP occurs in between 4% and 35% of patients and that it is associated with age or pre-existing ED [9-12]. Until now, no conclusive determination has been made. Most studies have reported only on the incidence of de novo ED after TURP and not on the proportion of patients experiencing an improvement of erectile function[10,11].

According to the results of our study, TURP does not affect the erectile function of the patient. Patients could be affected negatively as a result of worrying about the invasive procedure. Furthermore, patients could be affected by feeling pain during erection as the result of injury to the urethra. As time goes by, however, these problems are solved, and the change can most likely be attributed to improvement in the quality of urination. The survey showed that when patients experienced

TABLE 4: Mean EF domain score on the IIEF at baseline and at 1, 3, and 6 months in patients undergoing TURP

	Base Line Mean ±SD	1 Month Mean ±SD	p-value	3 Month Mean ±SD	p-value	6 months Mean ±SD	p-value
Total	10.09±10.15	7.79±8.52	0.02	8.18±9.26	0.04	8.91±8.83	0.08
Increased Group	11.00±6.88	12.90±10.54		15.50±8.63		17.50±6.68	
No Influence Group	6.98±9.34	4.95±7.00		6.06±8.18		6.86±9.50	
Decreased Group	18.26±8.05	13.44±8.93		11.95±8.28		12.96±8.76	

EF domain score was significantly decreased (p-value 0.02, p-value 0.04). Six months later, however, there was no longer a statistically significant decrease in the postoperative EF domain score compared with the preoperative EF domain score (p value 0.08) (Table 4).

Nine patients had erectile function before the operation but had full ED after the operation (7%), and 6 patients had full ED before the operation but recovered erection after the operation (4.6%). A total of 12 patients (14%) had an increased EF domain score after the operation, and 23 patients (28%) had a decreased EF domain score after operation. There were no significant differences between the two groups for any compared items. Intraoperative capsular perforation occurred in 18 (21%) patients. Capsular perforation had no significant difference in the two groups ($p<0.64$, $p<0.09$). Interestingly, however, the recovered erectile function group show a more decreased IPSS-related score than did the full ED group after TURP: total IPSS score, 15.7 vs 10.0 ($p<0.1$).

The increased EF domain score group had a more decreased IPSS-related score than did the decreased EF domain score group: total IPSS score 11.6 vs 9.0 ($p<0.40$). Capsular perforation was not significantly associated with post TURP erectile dysfunctions ($p<0.88$).

DISCUSSION

BPH is a common condition in elderly men and is associated with a range of erectile function. Because ED also has a high prevalence in elderly men, many groups have assessed whether any causal relationship exists between BPH and erectile function[4]. Treatments for BPH are also associated with erectile function. But the effect of TURP on erectile function is still controversial, and the available evidence is conflicting. Erection is a complex phenomenon that involves neurological, hormonal, arterial, venous, and muscular components and that is further influenced by psychogenic, cognitive, and environmental factors[5,6].

The effect of TURP on erectile function may be brought about via several different routes, including the psychogenic effect of an invasive procedure in the genital region, injury to the nerve tracts supplying the corpus cavernosum as a result of electrocoagulation,

difficulty of urination caused by BPH, they preferred to avoid suffering from this condition by ceasing to pursue sex. Subsequently, their libido remained comparatively low. After TURP, their mental stress was released, their libido became normal, and the patients felt that their erectile ability improved.

Several authors have reported that capsular perforation is a potential risk factor for developing erectile dysfunction after TURP[13,14]. However, in our study, capsular perforation had no significant correlation with erectile function. We think that ED related to capsular perforation may depend on the location, depth, and extent of the perforation.

CONCLUSIONS

Most studies have reported only on the incidence of ED after TURP. Our study showed that there was a significant decrease in erectile function for 3 months after TURP. However, no significant change in erectile function was observed after 6 months. Although no significant correlation was detected, one interesting result was improved erectile function in the patients who had better voiding symptoms after TURP.

Conflicts of Interest

The authors have nothing to disclose.

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