

A Study of the Effect of Trans-Urethral Resection of Prostate on the Erectile Function of the Patients in Eastern Indian Population

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Abstract: There has been a continuing debate on the effect of transurethral resection of prostate (TURP) on the erectile function (EF) of the patient. This study aims to study the effect of TURP on the EF of the patient at 3 months and 6 months after the surgery and compare it with the preoperative baseline. A total of 44 sexually active patients who underwent TURP at Calcutta National Medical College & Hospital, Kolkata during the period between August 2016 to January 2017 were studied. The EF of these patients in preoperative period was noted using the EF domain of the International Index of Erectile Function (IIEF) questionnaire. During post-operative follow up at 3 months and 6 months after surgery, the EF was noted again using the same EF domain of IIEF questionnaire and was compared to the pre-operative baseline value. The EF domain score of the IIEF was found to be significantly decreased in patients at the 3 month postoperative period. At 6 months postoperative follow-up, EF domain score was found to be improved as compared to the 3 month follow-up value and there was no significant difference with the pre-operative baseline score. TURP has a significant effect on the EF of the patient in the immediate post-operative period with significant decline which tends to improve over time. At 6 months follow-up there remains no significant effect of the surgery on the EF of the patient.

Keywords: Trans-urethral resection of prostate, Benign Prostatic Hyperplasia, Erectile function.

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a pathologic process that is the most common cause of lower urinary tract symptoms (LUTS) in ageing males [1].

Trans urethral resection of prostate (TURP) has been the most commonly performed surgery for the treatment of this condition. It is the gold standard procedure against which results of all other modalities of treatment are compared [2, 3]. There has been a continuing debate regarding the effect of TURP on the erectile function (EF) of the patients [4]. It has been reported that TURP causes erectile dysfunction (ED) in some patients, while there are some other reports claiming improvement in the EF of patients with pre-existing ED following TURP [5]. This study aims to evaluate the erectile function of the patients in eastern Indian population after 3 months and 6 months of TURP and to compare it with the pre-operative baseline.

MATERIALS AND METHODS

This prospective cohort study included sexually active patients undergoing TURP at the Department of Urology, Calcutta National Medical College & Hospital, and Kolkata between the periods of

August 2016 to January 2017. Those patients with known comorbidities of diabetes mellitus, hypertension, neurologic disorders and those taking medications for ED were excluded from the study. The patients having post-operative complications of prolonged incontinence and stricture formation were also excluded from the study as were the patients who were lost to follow-up. Patients with a histopathology report of prostatic adenocarcinoma in the TURP specimen were also excluded from the study.

The EF domain of the International Index of Erectile Function (IIEF) questionnaire was used to record the EF score of the patients in the pre-operative period which was considered as the baseline value of EF score. The same EF domain of IIEF questionnaire was used to record the EF score of the patients at 3 months post-operative and 6 months post-operative period.

Patients were divided into 2 groups according to their ages (≤ 65 years, >65 years respectively). The mean EF score at the pre-operative baseline, at 3 months post-operative period and at 6 months post-operative period were calculated and compared with simple statistical tools and the result was analysed accordingly.

RESULTS

A total of 44 sexually active patients who met the inclusion and exclusion criteria as mentioned above were included in the study. The mean age was 63.9 years with the age ranging from 54 years to 72 years. The baseline patient characteristics are mentioned in Table 1. They were divided into 2 groups according to the group. The group I (≤ 65 years) included 25 patients and group II (>65 years) included 19 patients.

Table-1: Baseline patient characteristics

Characteristics	Group I	Group II	Overall
Number of patients	25	19	44
Mean Age (in years)	60.9	67.8	63.9
Prostate volume (in gm)	51.1	54.8	52.7
Mean EF score	20.52	14.63	17.98

The mean EF score at the pre-operative period was 20.52 for group I and 14.63 for group II. The overall mean EF score at this pre-operative period was 17.98 with standard deviation (SD) of 4.42. Similarly

the mean EF score for both the groups individually as well as for the overall data were calculated at 3 months post-operative period and 6 months post-operative period as shown in Table 2.

Table-2: Mean EF scores at baseline, 3 months and 6 months post-operative period

Age group (years)	Pre-op EF score (mean)	EF score at 1 month (mean)	p-value	EF score at 6 months (mean)	p-value
Group I	20.52 \pm 3.66	16.96 \pm 3.87	<0.001	20 \pm 3.46	0.099
Group II	14.63 \pm 2.81	12.05 \pm 2.88	<0.001	13.84 \pm 3.58	0.138
Overall	17.98 \pm 4.42	14.82 \pm 4.23	<0.001	17.34 \pm 4.65	0.095

For Group I i.e. patients ≤ 65 years of age group, the mean EF score showed a statistically significant decline from the value of 20.52 to 16.96 (p value: <0.001) at the end of 3 months after the surgery which improved at 6 months after the surgery going upto 20 with the difference with baseline being statistically insignificant. (p value: 0.099). For patients between the age >65 years (Group II), there was a statistically significant (p value: <0.001) decline in mean EF score from the baseline at 3 months post-operative period (14.63 to 12.05 respectively) which improved at 6 months post-operative period (13.84) with the difference from baseline again being statistically insignificant (p value: 0.138).

of ED[7-10] However, the effect of TURP on the EF of the patients is still a matter of continuing debate with conflicting results present in the literature[4].

The effect of TURP on the erectile function may be due to various factors owing to the complex phenomenon of erection that itself depends on many factors including physical, biochemical, neurological, arterial, venous, muscular, psychosocial, and environmental factors among others[11, 12]. The exact cause of how TURP affects the erectile function is still not clearly known. The most plausible factor appears to be the psychogenic stress associated with an invasive procedure carried out over the genitalia and the pain, discomfort and dysuria associated with the surgery in the post-operative period. Physical injuries to the neurovascular bundle due to electrocoagulation, thrombosis of the cavernously vessels, direct injures to the nerves tract may be other possible causal factors [13,14].

Overall at 3 months post-operative period, 3 patients (6.82%) had an improvement in the EF while diminished EF was noted in rest of the patients. At the end of 6 months post-operative period there was an improvement in the EF of 14 patients (31.82%) while 7 patients (15.91%) had unchanged EF. Rest of the patients noted a decline in the EF at 6 months post-operative period.

Many studies have been published on the incidence of ED in patients undergoing TURP.[15, 16] The reported incidence of ED after TURP ranged from 4% to 35% in various studies[15-18]. However, very few studies have been performed regarding the effect of TURP on the EF as whole.

DISCUSSION

BPH is one of the most common conditions affecting the day to day life of elderly males. ED is also a common occurrence in the elderly age group and often its occurrence has been associated with BPH [6]. The medical management of BPH itself has been associated as having a causative role in the occurrence

According to the results of our study, in the immediate post-operative period i.e. upto 3 months after the surgery, there is a significant negative effect of

TURP on the EF of the patients. This decline in the EF tends to improve with time and almost reaches the baseline with insignificant difference at 6 months post-operative period. Based on these results it is safe to say that there is no significant effect of TURP on the EF of the patient in the long-term.

The immediate decline in the EF of the patient may be explained by the post-operative stress and pain associated with the surgery which tends to go away with the passage of time. However, since we didn't focus on the relationship between pain and the EF in our study, the causal association still remains a postulation only.

The small sample size of the study remains the most important limitation and a further study with a larger sample size may be needed to better characterize the effect of TURP on the EF of the patients. The lack of any finding of any causative factor for this effect is another important limitation of this study. Another study with a larger sample size and with possibility to search for different causative factors for such effects of TURP on EF of the patient is needed so that we can search for preventive and treatment approaches for the same.

CONCLUSION

BPH is the most common condition affecting the elderly males. TURP has been the gold standard for the surgical management of this condition. The effect of TURP on the EF of the patient is still under controversies. We concluded in our study that although TURP has a significant negative effect on the EF of the patients in the immediate post-operative period (upto 3 months), this tends to improve over time and in the long-term there is no significant effect of TURP on the EF of the patients.

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