Original Article

# A prospective study to compare changes in male sexual function following holmium laser enucleation of prostate versus transurethral resection of prostate

Praveen Pushkar, Rajesh Taneja[1], Anshuman Agarwal[1]

Department of Urology, Asian Institute of Medical Sciences, Faridabad, Haryana, [1]Department of Urology, Indraprastha Apollo Hospital, New Delhi, India

## Abstract

**Introduction:** Transurethral resection of the prostate (TURP) and holmium laser enucleation of the prostate (HoLEP), both are considered standard endosurgical treatment of benign prostatic hyperplasia (BPH). Many studies have evaluated changes in sexual function following treatment of BPH. However, data are sparse on comparative study between the two standard options of the treatment of BPH.

**Aim:** The aim of this study was to compare changes in sexual function following HoLEP versus TURP using the International Index of Erectile Function-15 (IIEF-15) questionnaire.

**Materials and Methods:** A prospective study carried out for 4 years from May 2013 to April 2017. All patients with bothersome lower urinary tract symptoms due to BPH, who got admitted to the hospital for surgical management, were enrolled for the study and they underwent either HoLEP or TURP. Postoperatively, they were followed for 6 months at 1-, 3-, and 6-month interval.

**Main Outcome Measures:** Statistical testing was conducted with the Statistical Package for the Social Science system version 17.0. Continuous variables are presented as mean ± standard deviation, and categorical variables are presented as absolute numbers and percentage. The comparison of normally distributed continuous variables between the groups was performed using Student's *t*-test. For within the groups, paired *t*-test was used at 1 month, 3 months, and 6 months from the baseline.

**Results:** All the five domains of sexual function based on the IIEF-15 questionnaire remained significantly low at 6-month postsurgery in both the groups.

**Conclusions:** By comparing the changes in sexual function between HoLEP and TURP group at the end of our study (6 months), we found no difference between the groups with regard to erectile function or overall sexual function as assessed by total IIEF-15 score.

**Keywords:** Benign prostatic hyperplasia, holmium laser enucleation of prostate, International Index of Erectile Function, transurethral resection of the prostate

**Address for correspondence:** Dr. Praveen Pushkar, Room No. 21, Asian Institute of Medical Sciences, Sector 21 A, Faridabad, Haryana, India.
E-mail: praveenpushkar@yahoo.co.in
**Received:** 10.04.2018, **Accepted:** 25.09.2018

| Access this article online | |
|---|---|
| Quick Response Code: | Website: www.urologyannals.com |
| | DOI: 10.4103/UA.UA_44_18 |



**How to cite this article:** Pushkar P, Taneja R, Agarwal A. A prospective study to compare changes in male sexual function following holmium laser enucleation of prostate versus transurethral resection of prostate. Urol Ann 2019;11:27-32.

## INTRODUCTION

With the increase in life expectancy, there has been a growing interest in age-related conditions such as symptomatic benign prostatic hyperplasia (BPH) and sexual dysfunction. Since BPH and sexual dysfunction are highly prevalent conditions that have substantially adverse impacts on the quality of life in elderly men, many studies have evaluated a causal relationship between BPH or lower urinary tract symptoms (LUTS) and sexual function, although such a relationship remains controversial.

In view of possible association between LUTS/BPH and sexual function, several studies have evaluated the influence of various treatments for LUTS/BPH on sexual function. The previous studies on transurethral resection of the prostate (TURP), the gold standard of surgical treatment for BPH causing LUTS, have shown mixed results in terms of postoperative sexual function.

Now, holmium laser enucleation of the prostate (HoLEP) is being considered as one of the standard treatment options for BPH. However, to date, there are sparse data on comparative study between HoLEP and TURP with regard to changes in sexual function.

## MATERIALS AND METHODS

This study was carried out in a 695-bedded tertiary health care. This was a prospective study for a duration of 4 years from May 2013 to April 2017.

All patients with bothersome LUTS due to BPH, who got admitted to the hospital for surgical management in the form of either TURP or HoLEP, were evaluated. Standard evaluation for LUTS/BPH included clinical history taking and physical examination including digital rectal examination, ultrasonography kidney, ureters, and bladder for prostate size, and uroflowmetry for urine analysis and culture. In addition to these, serum total testosterone level was also done.

All the sexually active males requiring surgical treatment of BPH were included in the study. Patients who had a history of previous prostatic surgery/pelvic surgery, urethral stricture or neurogenic bladder, or prostatic malignancy were excluded from the study. Patients whose total testosterone level was <270 ng/dl or those who were taking medicines for erectile dysfunction were also excluded from the study.

Written informed consent was obtained from all patients included in the study. All patients were given two questionnaires, namely, the IIEF-15 questionnaire and the International Prostate Symptom Score (IPSS). Baseline (0 month) IIEF and IPSS scores were noted.

Patients were given the choice of both the procedures. Based on their choices, which mainly depended on the cost and the size of the prostate, they were divided into two groups, namely, HoLEP and TURP. They underwent the procedures (monopolar TURP or HoLEP), which were performed by four experienced surgeons, two of them performed HoLEP and other two performed TURP for their respective group of patients. All the four surgeons had vast experience of doing >1000 TURP's/HoLEP's. All of them used the standard surgical techniques for doing the procedures.

Follow-up of changes in sexual function (IIEF-15 score) was carried out at 1, 3, and 6 months, and data of both the groups were analyzed with the appropriate statistical methods.

Statistical testing was conducted with the Statistical Package for the Social Science system version 17.0. Continuous variables are presented as mean ± standard deviation and categorical variables are presented as absolute numbers and percentage. The comparison of normally distributed continuous variables between the groups was performed using Student's *t*-test. Nominal categorical data between the groups were compared using Chi-squared test or Fisher's exact test as appropriate. For within the groups, paired *t*-test was used at 1 month, 3 months, and 6 months from baseline.

## RESULTS

A total of 214 patients were initially enrolled in the study according to the inclusion and exclusion criteria, but only 119 patients (55.6%) could complete the follow-up as per the protocol. Out of those 119 patients, 63 patients

**Table 1: Comparison between the two groups**

| | HoLEP | TURP | *P* |
|---|---|---|---|
| Age (years) | 61.67±5.26 | 61.48±5.40 | 0.851 |
| IPSS (baseline) | 22.10±5.99 | 21.61±4.90 | 0.626 |
| Prostate size (g) | 74.44±20.27 | 59.75±10.61 | <0.001 |
| Comorbidities (%) | | | |
| DM | 13 (20.6) | 9 (16.1) | 0.732 |
| HTN | 28 (44.4) | 21 (37.5) | 0.442 |
| CAD | 5 (7.9) | 6 (10.7) | 0.602 |
| Others | 7 (11.1) | 6 (10.7) | 0.945 |
| Medication | | | |
| α-blocker (%) | 51 (81) | 42 (75) | 0.433 |
| Mean duration (months) | 18 (12-36) | 24 (12-36) | 0.136 |
| 5α RI (%) | 28 (44.4) | 20 (35.7) | 0.333 |
| Mean duration (months) | 12 (6.75-16.50) | 12 (12-24) | 0.065 |

IPSS: International Prostate Symptom Score, DM: Diabetes mellitus, HTN: Hypertension, CAD: Coronary artery disease, 5αRI: 5α-reductase inhibitor, HoLEP: Holmium laser enucleation of prostate, TURP: Transurethral resection of the prostate

**Table 2: Mean difference in score of all domains from the baseline in both the groups**

| | 0 month (baseline) | | | 1 month | | | 3 months | | | 6 months | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HoLEP | TURP | *P* | HoLEP | TURP | *P* | HoLEP | TURP | *P* | HoLEP | TURP | *P* |
| EF | 17.21±4.09 | 16.95±4.24 | 0.734 | 6.75±4.02 | 8.36±3.50 | 0.022 | 10.38±5.63 | 10.48±3.82 | 0.910 | 14.43±6.69 | 15.21±5.42 | 0.486 |
| OF | 5.97±1.58 | 5.79±1.66 | 0.540 | 2.48±0.96 | 2.27±1.05 | 0.262 | 3.79±1.08 | 3.54±1.33 | 0.247 | 4.52±1.06 | 4.00±1.08 | 0.009 |
| SD | 6.71±1.61 | 6.18±1.62 | 0.073 | 2.95±1.11 | 3.09±1.03 | 0.490 | 4.84±1.66 | 4.13±1.49 | 0.015 | 6.33±1.89 | 5.66±1.63 | 0.041 |
| IS | 9.27±1.84 | 8.79±2.17 | 0.191 | 4.06±1.40 | 4.20±1.35 | 0.601 | 6.71±1.90 | 5.39±1.61 | <0.001 | 8.83±2.14 | 7.91±2.04 | 0.019 |
| OS | 6.37±1.49 | 6.07±1.56 | 0.297 | 3.06±1.05 | 3.20±1.20 | 0.519 | 4.84±1.66 | 4.04±1.39 | 0.005 | 6.61±1.88 | 5.61±1.76 | 0.103 |
| TS | 45.52±9.27 | 43.77±10.37 | 0.331 | 19.30±6.86 | 21.11±7.29 | 0.167 | 30.57±10.47 | 27.57±8.62 | 0.093 | 40.27±12.70 | 38.39±10.96 | 0.393 |

EF: Erectile function, OF: Orgasmic function, SD: Sexual desire, IS: Intercourse satisfaction, OS: Overall satisfaction, TS: Total score, HoLEP: Now holmium laser enucleation of prostate, TURP: Transurethral resection of the prostate

**Table 3: Age group-wise change in score of different domains between the groups**

| | 1 month | | | 3 months | | | 6 months | | |
|---|---|---|---|---|---|---|---|---|---|
| | HoLEP | TURP | P | HoLEP | TURP | P | HoLEP | TURP | P |
| EF | | | | | | | | | |
| ≤55 years | 10.22±2.63 | 9.08±1.44 | 0.219 | 5.55±3.61 | 7.00±1.59 | 0.229 | 0.22±3.42 | 0.42±1.50 | 0.862 |
| 56-60 years | 11.08±1.78 | 9.75±1.91 | 0.128 | 6.33±3.52 | 6.75±1.83 | 0.763 | 2.00±2.95 | 0.37±2.50 | 0.218 |
| 61-65 years | 10.38±1.65 | 8.54±1.84 | 0.001 | 6.88±3.28 | 6.32±1.64 | 0.466 | 2.27±3.86 | 2.18±1.71 | 0.922 |
| 66-70 years | 10.25±1.57 | 7.57±1.83 | <0.001 | 7.81±2.40 | 6.07±1.73 | 0.033 | 5.62±3.54 | 2.93±1.77 | 0.015 |
| OF | | | | | | | | | |
| ≤55 years | 4±1.80 | 3.75±0.75 | 0.668 | 1.33±1.50 | 2.58±1.24 | 0.050 | −0.33±1.41 | 0.67±0.49 | 0.034 |
| 56-60 years | 4±1.04 | 3.50±0.75 | 0.260 | 1.75±1.54 | 2.00±1.07 | 0.696 | 0±1.13 | 0.25±0.46 | 0.562 |
| 61-65 years | 4.27±1.40 | 3.04±0.72 | 0.001 | 2.11±1.21 | 1.95±0.95 | 0.616 | 0.61±1.13 | 0.45±0.74 | 0.571 |
| 66-70 years | 2.62±1.41 | 2.36±0.84 | 0.540 | 1.87±1.36 | 1.78±0.70 | 0.827 | 0.69±1.25 | 0.64±0.50 | 0.901 |
| SD | | | | | | | | | |
| ≤55 years | 4±1.80 | 3.75±0.75 | 0.668 | 1.33±1.50 | 2.58±1.24 | 0.050 | −0.33±1.41 | 0.67±0.49 | 0.034 |
| 56-60 years | 4±1.04 | 3.50±0.75 | 0.260 | 1.75±1.54 | 2.00±1.07 | 0.696 | 0±1.13 | 0.25±0.46 | 0.562 |
| 61-65 years | 4.27±1.40 | 3.04±0.72 | 0.001 | 2.11±1.21 | 1.95±0.95 | 0.616 | 0.61±1.13 | 0.45±0.74 | 0.571 |
| 66-70 years | 2.62±1.41 | 2.36±0.84 | 0.540 | 1.87±1.36 | 1.78±0.70 | 0.827 | 0.69±1.25 | 0.64±0.50 | 0.901 |
| IS | | | | | | | | | |
| ≤55 years | 5.67±1.41 | 5.33±1.15 | 0.559 | 2.00±1.66 | 3.75±1.29 | 0.013 | −0.11±1.69 | 0.75±0.96 | 0.156 |
| 56-60 years | 6.08±1.50 | 5.62±1.06 | 0.466 | 2.83±1.27 | 4±1.07 | 0.046 | 0.50±1.00 | 1.00±0.53 | 0.214 |
| 61-65 years | 4.85±1.25 | 4.18±1.43 | 0.094 | 2.42±1.10 | 3.09±1.11 | 0.043 | 0±1.52 | 0.86±1.08 | 0.031 |
| 66-70 years | 4.87±2.06 | 4.00±1.18 | 0.173 | 2.87±2.30 | 3.21±0.70 | 0.601 | 1.44±1.93 | 0.93±1.07 | 0.389 |
| OS | | | | | | | | | |
| ≤55 years | 3.55±1.01 | 3.25±1.42 | 0.549 | 0.67±1.00 | 2.25±1.42 | 0.010 | −0.67±0.87 | 0.17±0.84 | 0.038 |
| 56-60 years | 3.58±1.88 | 3.37±0.92 | 0.776 | 1.58±1.56 | 2.50±0.92 | 0.155 | 0±1.21 | 0.12±0.99 | 0.811 |
| 61-65 years | 3.19±1.20 | 3±0.87 | 0.536 | 1.46±1.07 | 2.32±0.84 | 0.004 | 0.15±1.15 | 0.68±0.48 | 0.051 |
| 66-70 years | 3.12±1.20 | 2.07±1.27 | 0.027 | 2.06±1.18 | 1.14±1.75 | 0.099 | 0.94±1.34 | 0.57±0.75 | 0.374 |
| TS | | | | | | | | | |
| ≤55 years | 27.55±6.12 | 25.67±3.91 | 0.399 | 12.22±5.93 | 18.50±4.76 | 0.014 | 1.00±5.57 | 4.92±2.57 | 0.044 |
| 56-60 years | 28.58±4.78 | 26.37±2.44 | 0.246 | 14.92±5.11 | 17.62±2.39 | 0.181 | 4.42±5.66 | 4.25±2.71 | 0.939 |
| 61-65 years | 26.15±4.01 | 22.27±2.83 | <0.001 | 15±5.15 | 15.82±2.36 | 0.497 | 4.31±6.35 | 5.68±2.27 | 0.341 |
| 66-70 years | 23.81±5.28 | 18.57±3.59 | 0.004 | 16.44±5.55 | 14±3.33 | 0.163 | 9.81±6.92 | 5.93±3.00 | 0.062 |

EF: Erectile function, OF: Orgasmic function, SD: Sexual desire, IS: Intercourse satisfaction, OS: Overall satisfaction, TS: Total score, HoLEP: Holmium laser enucleation of prostate, TURP: Transurethral resection of the prostate

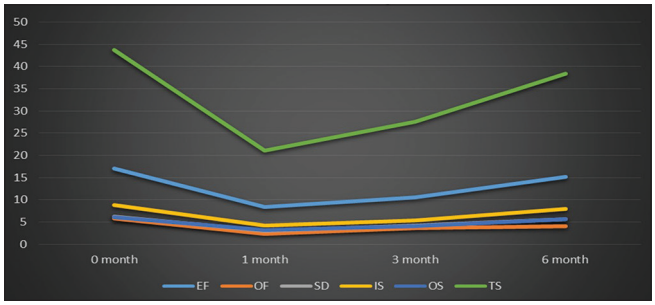


**Figure 1:** The mean score of different domains at baseline and follow-up period in transurethral resection of the prostate group

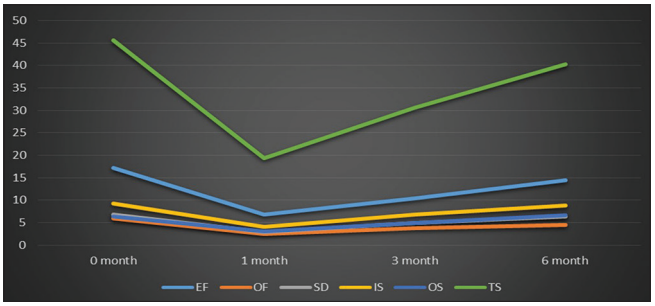


**Figure 2:** The mean score of different domains at baseline and follow-up period in holmium laser enucleation of the prostate group

underwent HoLEP and rest 56 underwent TURP [Tables 1-3 and Figures 1-2].

Mean age of the patients in HoLEP group was 61.67 years (range 49–69 years) and that of TURP group was

61.48 years (range 49–70 years). For matching, patients were distributed in four age groups as ≤55 years, 56–60 years, 61–65 years, and 66–70 years. Mean age and the age-wise distribution of patients were comparable in both the groups ($P = 0.851$).

Baseline LUTS score according to the IPSS were comparable in both the groups ($P = 0.626$). Mean prostate size was significantly larger in HoLEP group (74.44 ± 20.27 g) compared to TURP group (59.75 ± 10.61 g) ($P < 0.001$).

Hypertension was the most common comorbidity found in both the groups. Distribution of patients based on the comorbidity was comparable in both the groups ($P > 0.05$).

Majority of the patients (78%) were taking α-blocker for their LUTS at the time of surgery. Duration of treatment with α-blockers and distribution of patients taking α-blocker were comparable in both the groups ($P > 0.05$). Approximately, 40% of patients were on treatment with 5-α-reductase inhibitor (5αRI) (at the time of surgery with mean duration of 12 months. Distribution of patients according to the 5αRI treatment and the mean duration of treatment were comparable in both the groups ($P > 0.05$).

Mean erectile function (EF) score remained significantly low in both the groups at 6 months without statistically significant difference between the two groups. EF became normal in both the groups at 6 months for those patients who were ≤55 years, and there was no difference between the two groups at this point.

Mean orgasmic function (OF) score was significantly more in HoLEP group than TURP group at 6 months. Sexual desire (SD) score was significantly better at 3 and 6 months in HoLEP group compared to TURP group. For ≤60 years age patients, SD score almost became normal at 6 months in HoLEP group. Mean intercourse satisfaction (IS) score was significantly better in HoLEP group at 3 and 6 months compared to TURP.

At 6 months, mean overall satisfaction (OS) score was almost comparable in both the groups. For ≤55 years age group, HoLEP group did significantly better at 6 months compared to TURP group. OS score almost normalized at 6 months in both the groups at 6 months for ≤60 years age.

Mean total score (TS) remained significantly less at 6-month postsurgery in both HoLEP and TURP group, but there was not much statistically significant difference between the two groups at the same time interval. Total IIEF score almost became normal at 6 months in ≤55 years HoLEP group, but in rest of the age groups, it remained significantly low. In TURP group, total score kept significantly low in all age groups. The difference between the two groups was insignificant at 3 and 6 months in all age groups except for those ≤55 years.

## DISCUSSION

Sexuality is an essential aspect of a man's life and has a significant impact on life satisfaction. BPH is a condition that commonly affects older men and is often associated with LUTS and sexual dysfunction. Men with bothersome LUTS are at increased risk for sexual dysfunction, including moderate-to-severe erectile dysfunction, ejaculatory dysfunction, and decrease in libido. As the age progresses, men develop symptoms of other comorbidities such as diabetes, hypertension, and heart disease. These comorbidities and their medications also have negative impact on men's sexual health.

Sexual dysfunction is highly prevalent not only in patients with BPH but also in those surgically treated for this condition. In our study, we tried to compare changes in sexual function between two most common techniques used in benign prostate surgery – TURP and HoLEP.

In our study, 65.54% of patients were above 60 years of age and the mean age in HoLEP and TURP group was 61.67 years and 61.48 years, respectively. All of them were sexually active during the study period.

LUTS due to BPH in elderly males is often accompanied by sexual dysfunction. O'Leary showed that in men with LUTS, the severity of urinary symptoms appears to exert the greatest influence on the degree of sexual dysfunction.[1] Hence, males with severe LUTS due to BPH often have significantly lower libido, greater difficulty maintaining an erection, and lower levels of sexual satisfaction compared to men with less severe LUTS.

Mean prostate size in grams was 74.44 ± 20.27 in HoLEP group and 59.75 ± 10.61 in TURP group. In addition, there was a statistically significant difference in the size of the prostate in the two groups though the baseline symptoms due to BPH as assessed by IPSS were comparable in both the study groups ($P = 0.626$). Hence, the severity of symptoms due to prostatomegaly was matched, but we could not match the prostate size, which is one of the limitations of this study.

Sexual dysfunction is a common, underappreciated complication of diabetes. Male sexual dysfunction among

diabetic patients can include disorders of libido, ejaculatory problems, and erectile dysfunction. Sexual dysfunction is also common in hypertensive men though it is unclear from the literature whether this problem is related to hypertension or its therapy.[2] Erectile dysfunction and cardiovascular diseases share common risk factors such as cigarette smoking, obesity, metabolic syndrome, and a sedentary way of life. Epidemiological surveys have highlighted the relationship between cardiovascular disease risk factors and sexual dysfunction in men.[3] In our study, 18% of patients had diabetes, 41% had hypertension, and 9% had coronary artery disease. Distribution of patients based on these comorbidities was comparable in both the groups ($P > 0.05$).

In our study, majority of the patients (78%) were on α-blocker at the time of surgery. We did not enquire about the type of α–blocker patients were taking. The distribution of patients who were taking α-blocker and the duration of treatment were comparable in both the groups ($P = 0.433$). In our study, 40% of patients were on treatment with 5αRI at the time of surgery with mean duration of 12 months. Distribution of patients who were on 5αRI treatment and the mean duration of treatment were comparable in both the groups ($P > 0.05$).

Erectile dysfunction is the persistent inability to achieve and maintain an erection sufficient for satisfactory sexual performance.[4] We found that mean EF score decreased significantly in both the groups at 1 month postoperatively but showed an increasing trend at 3 and 6 months. Decline in EF score became significantly more in HoLEP group at 1 month compared to TURP group but after that difference in decline became nonsignificant. Briganti *et al*. analyzed the IIEF score at 12 and 24 months postoperatively and found that there was marginal, nonsignificant improvement in patient EF postoperatively, but there were no differences between the HoLEP and TURP groups.[5] We observed that mean EF score remained significantly low in both the groups even at 6 months without much significant difference between the two groups. Since ours was a short-term study, mean EF score could not come back to the baseline level at 6 months. By seeing the rising trend, we can expect that after 12 months of follow-up, scores may come near the baseline.

Orgasm is a distinct entity different from ejaculation characterized by physical and emotional sensations experienced at the peak of sexual arousal usually after stimulation of a sexual organ. Ejaculation is the forcible ejection of seminal fluid from the urethral meatus that commonly accompanies sexual climax and orgasm. Orgasm is a purely cerebral and emotional cortical occurrence, though in normal male physiology, orgasm coincides with ejaculation. In the present study, OF decreased at 1 month following surgery and later improved at 3- and 6-month periods. Difference in mean OF score between the two groups was only significant at 6-month period, with HoLEP group having better score that TURP group ($P = 0.009$). Decrease in OF reflects the high prevalence of postoperative retrograde ejaculation and decreased ejaculatory volume that was induced by TURP and HoLEP.

SD, or libido, is an intense sexual feeling that a man has for his partner. In our study, SD score was significantly better in HoLEP group than TURP group ($P < 0.05$) at 3- and 6-month follow-up. This could be due to rapid recovery, reduced catheterization period, and early discharge from hospital in HoLEP group compared to TURP group.

We noticed that at 3 and 6 months, mean IS core was significantly better in HoLEP group when compared to TURP group ($P < 0.05$). This was perhaps because of better OF in HoLEP group compared to TURP group.

OS assesses the level of satisfaction with the sex life and sexual partner. OS score was comparable at baseline and 1-month period between HoLEP and TURP groups in our study. At 6 months, score was comparable ($P = 0.103$) between the groups, but the mean score in HoLEP group was better than baseline ($P = 0.198$) even though this was statistically not significant.

We observed that total IIEF-15 score was comparable at baseline and in the follow-up period between both the groups ($P > 0.05$). Total IIEF-15 score declined initially at 1-month period, then it gradually improved at 3- and 6-month postoperatively. At 6 months, total score was significantly less in both the groups compared to baseline, but the score was comparable between the groups ($P = 0.393$).

We also observed that total score at 6 months in ≤55 years age group became comparable to baseline in HoLEP group, but in TURP group, it was significantly low at that time ($P < 0.001$). In rest of the age groups, the score was significantly low at 1, 3, and 6 months, and there was not much difference between the two groups, especially at 3 and 6 months. This might be because sexual dysfunction is prevalent in aged men, so recovery is mostly seen in young individuals.

Kuntz *et al*. based on the analysis of IIEF questionnaire confirmed the lack of postoperative differences in patient

sexual function between HoLEP and a standard procedure for BPH such as TURP.[6] Kim *et al*. showed that none of the subdomains of erection, ejaculation, sexual satisfaction, sexual activity, or SD were significantly affected by HoLEP.[7]

Most of the studies have concluded that overall sexual function slightly deteriorated in the early postoperative period after HoLEP but recovered to the baseline at 1 year postoperatively.

In our study, all the individual domain scores except for OS score and total IIEF-15 score remained significantly low at 6-month follow-up. This could be because of our short-term study. Other studies have seen that scores return to baseline only at 1 year postoperatively. OF score may remain low in long-term follow-up, as we know that both TURP and HoLEP are associated with high incidence of abnormal ejaculation.

We searched the literature and found that none of the studies were matched according to the age distribution. We observed that total IIEF-15 score almost became normal at 6 months in ≤55 years in HoLEP group, but in the rest of the age groups, it remained significantly low. In TURP group, total score kept significantly low in all age groups.

## CONCLUSIONS

By comparing the changes in sexual function between HoLEP and TURP group at the end of our study (6 months), we found no difference between the groups with regard to EF or overall sexual function as assessed by total IIEF-15 score. Age was a significant factor in determining the return of sexual function in both the groups in our study. In the younger age group (≤55 years age), earlier return in overall sexual function was noticed in HoLEP group. In addition to the above points, we also found that mean of OF score, SD score, and IS score was significantly better in HoLEP group compared to TURP group, but there was no statistically significant difference in OS score.

### Financial support and sponsorship
Nil.

### Conflicts of interest
There are no conflicts of interest.

## REFERENCES

1. O'Leary MP. LUTS, ED, QOL: Alphabet soup or real concerns to aging men? Urology 2000;56:7-11.
2. Sullivan ME, Keoghane SR, Miller MA. Vascular risk factors and erectile dysfunction. BJU Int 2001;87:838-45.
3. Laumann EO, Paik A, Rosen RC. The epidemiology of erectile dysfunction: Results from the National Health and Social Life Survey. Int J Impot Res 1999;11 Suppl 1:S60-4.
4. NIH consensus conference. Impotence. NIH consensus development panel on impotence. JAMA 1993;270:83-90.
5. Briganti A, Naspro R, Gallina A, Salonia A, Vavassori I, Hurle R, *et al*. Impact on sexual function of holmium laser enucleation versus transurethral resection of the prostate: Results of a prospective, 2-center, randomized trial. J Urol 2006;175:1817-21.
6. Kuntz RM, Ahyai S, Lehrich K, Fayad A. Transurethral holmium laser enucleation of the prostate versus transurethral electrocautery resection of the prostate: A randomized prospective trial in 200 patients. J Urol 2004;172:1012-6.
7. Kim SH, Yang HK, Lee HE, Paick JS, Oh SJ. HoLEP does not affect the overall sexual function of BPH patients: A prospective study. Asian J Androl 2014;16:873-7.