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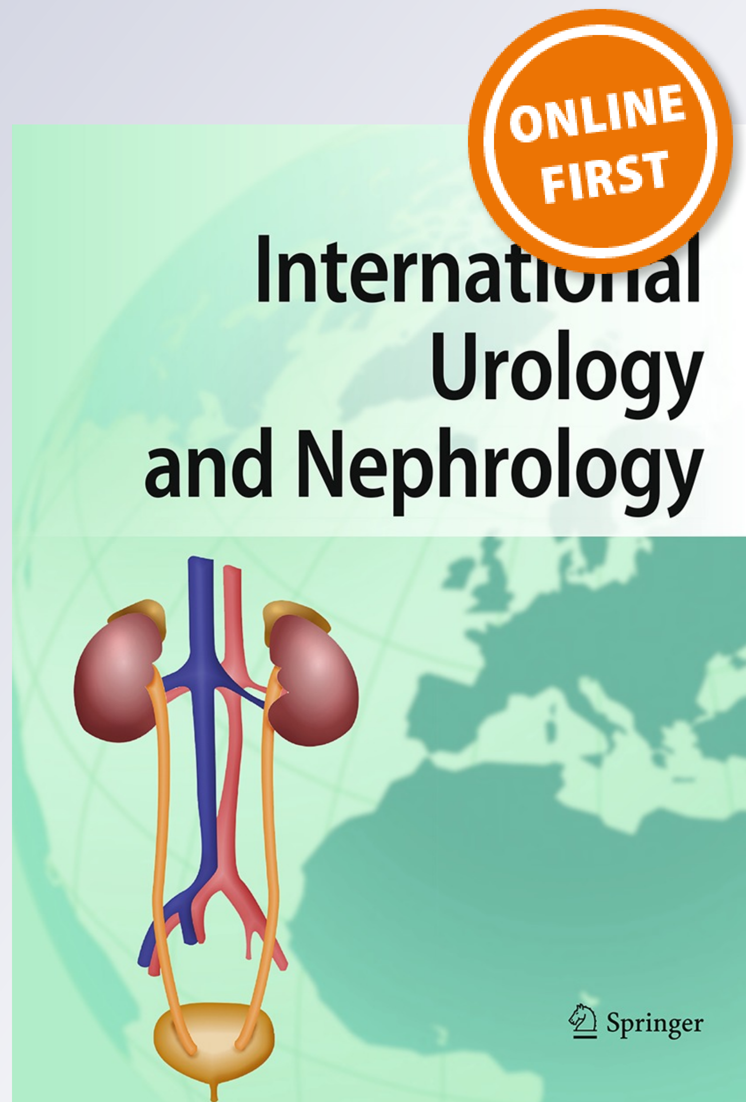
International Urology and Nephrology

ISSN 0301-1623

Int Urol Nephrol
DOI 10.1007/s11255-016-1274-3



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UROLOGY - ORIGINAL PAPER

Effect of endourological procedures on erectile function: a prospective cohort study

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Received: 28 January 2016 / Accepted: 17 March 2016
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Abstract
Introduction Many patients offered endourological procedures are concerned about potential sexual dysfunction following endoscopy, and there are scarce published data to support an evidence-based response. We aim to assess possible effects of endourological procedures on sexual activity and erectile function.
Patients and methods Sexually active men undergoing cystoscopy and/or upper tract endourological procedures were enrolled and evaluated using the IIEF-5 score and the IPSS, filled the day before and 10 days and 45–60 days after the procedure. Patients' characteristics (age, chronic medical condition, smoking, and medications) were recorded. The primary outcome was the change in the IIEF-5 score.
Results One hundred patients aged 24–60 years (mean 37.4) underwent endourological procedures (42 PCNLs, 30 ureteroscopies, 22 retrograde ureteropyelographies ± stenting, and 6 cystolitholapaxies) between January and August 2014. Preoperative IPSS ranged from 0 to 32 (mean [SD] 11.93 [8.64]), while IIEF-5 ranged from 14 to 25 (mean [SD] 21.63 [2.96]), with eight patients in the mild to moderate (12–16) ED range, 31 mild ED (17–21), and 59 no ED (22–25). Following the procedure, the IPSS improved (mean IPSS down from 11.9 to 6.1 at 10 days and 6.2 at 45 days, $P < 0.001$), while the IIEF remained unchanged [21.6 preoperative to 21.0 at 10 days ($P = 0.43$) and 21.7 at 45 days ($P = 0.81$)]. Patients with indwelling ureteric stents (28 patients) had significant LUTS postoperatively with a mean [SD] IPSS of 9.8 [7.2] at 10 days and 11.6 [7.8] at 45 days. The IIEF-5 score was not affected with a mean [SD] of 21.5 [3.3] at 10 days and 21.8 [3.1] at 45 days, compared to 22.0 [3.0] preoperatively ($P = 0.44$).
Conclusion Endoscopic procedures did not negatively impact erectile function and sexual activity.

Keywords Erectile function · Endourology · IIEF · Stents

Introduction

Endourological procedures are among the most commonly performed urologic interventions, and due to continuous improvements in endoscopic instruments, technology, and outcomes, the use of endoscopy in the management of urologic disorders is steadily increasing. Yet, in our part of the world, concern about possible sexual dysfunction following endourological interventions is widespread among patients being offered these procedures and is occasionally a reason for declining the proposed endoscopy. Published literature is scarce regarding the impact of cystoscopy or other endourological procedures on sexual function and quality of life [1, 2], and it is sometimes difficult to give the patient an evidence-based response to his concern. The current study is a prospective cohort study aiming to assess, through patient-filled questionnaires, the possible effects endourological procedures on the bladder and upper urinary tract may have on sexual activity and erectile function.

This study was approved by the Department of Urology Ethical Committee, and the Ethical Committee of Faculty of Medicine, Cairo University.

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Published online: 29 March 2016

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Patients and methods

The study was conducted at our tertiary care institution between January and October 2014 and recruited sexually active adult male patients, presenting to the urology outpatient clinic with urologic disorders requiring cystoscopy and/or upper tract endourological procedures (ureteroscopy, ureterorenoscopy, ureteric stenting, or percutaneous nephrolithotomy). Eligible patients had their sexual function assessed by the short version of the international index of erectile function (IIEF-5 questionnaire) filled the day before and 10 and 45–60 days after the procedure. An international prostate symptom score (IPSS) was also administered concomitantly for the evaluation of lower urinary tract symptom (LUTS).

Exclusion criteria included sexual inactivity/absence of sexual partner, prior treatment for erectile dysfunction, patients diagnosed with a malignancy, and patients requiring any simultaneous intervention for the urethra and/or the prostate (e.g., visual internal urethrotomy, bladder neck incision). For patients requiring a second intervention such as stent removal, or a second ureteroscopy during the study period, the questionnaires were filled 10 and 45–60 days after the second procedure.

Relevant patients' characteristics (age, chronic medical conditions, smoking, and medications), the procedure, postoperative stenting, and any complications were recorded. Routine postoperative care included scheduled acetaminophen (either IV or PO) q 6–8 h, in addition to Ketorolac prn and perioperative antibiotics (usually a quinolone or cephalosporin) for 3–5 days.

Descriptive data in the results were expressed as mean ± standard deviation (SD), median (minimum–maximum), or number (%). Comparison between IPSS values measured before and 10 and 45 days after operation in the two studied groups was made using Friedman ANOVA followed by Bonferroni test as a post hoc test. Comparison between IIEF-5 values measured before and 10 and 45 days–after operation was made using repeated-measures ANOVA. Comparison between categorical data in the two studied subgroups (Stented vs unstented) was made using Chi-square test. Comparison between values of different variables in the two studied subgroups was made using unpaired *t* test or Mann–Whitney test whenever appropriate. Correlation between IPSS and IIEF-5 in the two studied groups was analyzed using Spearman's rho test. Statistical Package for Social Sciences (SPSS) computer program (version 19 Windows) was used for data analysis. P value ≤ 0.05 was considered significant and <0.01 was considered highly significant.

Results

The study included 100 male patients aged 24–60 years (mean 37.4) who underwent endourological procedures (42 PCNLs, 30 ureteroscopies, 22 retrograde ureteropyelographies ± stenting, and 6 cystolitholapaxies) between January and October 2014. Patients' characteristics and comorbidities are summarized in Table 1.

The results of the IIEF-5 and IPSS questionnaires filled the day before the procedures revealed that preoperative IPSS ranged from 0 to 32 (mean ± SD 11.93 ± 8.64), while IIEF-5 ranged from 14 to 25 (mean ± SD 21.63 ± 2.96), with eight patients in the mild to moderate (12–16) ED range, 32 mild ED (17–21), and 60 no ED (22–25) (Fig. 1).

Following endourological interventions, there was no significant statistical difference in mean IIEF-5 at 10 days (mean 20.99 ± 4.81) and 45 days post-endoscopy (mean 21.70 ± 3.54; $P = 0.099$) for the whole cohort. Twenty-eight patients had a ureteric stent placed following the endoscopic procedure, while 72 patients were not stented. IIEF-5 score remained virtually unchanged in patients with stent placement from 22.04 ± 3.02 preoperative to 21.50 ± 3.31 at 10 days and 21.82 ± 3.09 at 45 days postoperative. The same was true for unstented patients (IIEF-5

Table 1 Patients' characteristics

Comorbidity/risk factor	Number of patients (out of 100)
Smoker/ex-smoker	45/36
Chronic kidney disease	5
Diabetes mellitus	5
Hypertension	6
Ischemic heart disease	1
Liver disease	3

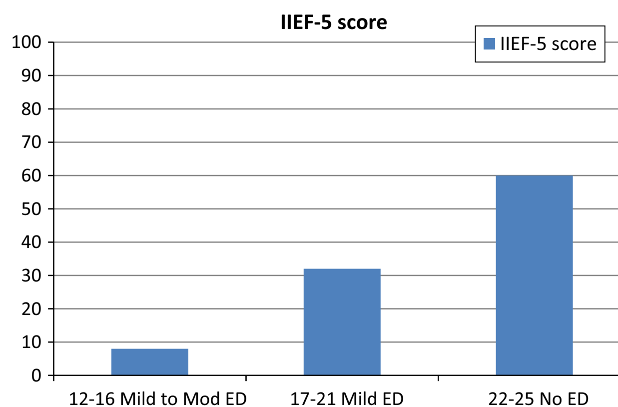

Fig. 1 Preoperative IIEF-5 scores

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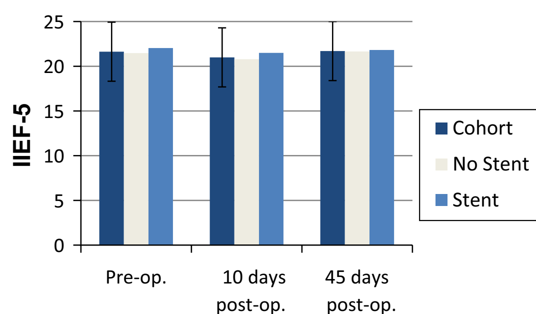

Fig. 2 IIEF-5 score changes following endoscopic interventions

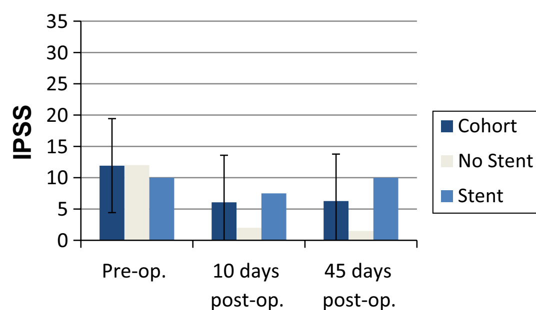

Fig. 3 IPSS score changes following endoscopic interventions

mean score 21.47 ± 2.94 preoperative to 20.79 ± 5.29 at 10 days and 21.65 ± 3.72 at 45 days postoperative, Fig. 2). Postoperatively, 6 patients were classified in the mild to moderate (12–16) ED range, 28 in the mild ED range (17–21), and the remaining 66 patients in the no ED (22–25) range.

The overall median (range) of IPSS significantly decreased from 11.5 (0–32) pre-endoscopy to 3.5 (0–28) at 10 days and 3.0 (0–28) at 45 days postoperative ($P = 0.001$). The decrease in IPSS was mainly seen in patients without stent placement [from IPSS score preoperative 12.0 (0–32) to 2.0 (0–28) at 10 days and 1.5 (0–28) at 45 days postoperative, $P = 0.001$]. In the 28 patients with stents, IPSS score did not significantly change [preoperative 10.0 (1–29) to 7.5 (1–26) and 10.0 (0–28) at 10 and 45 days, respectively ($P = 0.151$)] (Fig. 3).

There was an inverse correlation between changes in IPSS and IIEF-5 score at 10 and 45 days postoperatively, with a correlation coefficient of −0.212 ($P = 0.034$) and −0.257 ($P = 0.01$), respectively. The correlation was mainly seen in the group of non-stented patients [correlation coefficient of −0.253 ($P = 0.032$) and −0.279 ($P = 0.018$), respectively], whereas there was no statistically significant correlation in the patients with stents [−0.017 ($P = 0.931$) and −0.002 ($P = 0.991$)].

Discussion

Our study involved 100 sexually active male patients, aged 24–60 years (mean 37.4) undergoing endourological procedures. To our knowledge, this is one of very few studies in the literature (and probably the first in our region of the world) that evaluates the impact of various endourological interventions on sexual function. Our primary goal was to assess the change in sexual function (as measured by the IIEF-5 questionnaire) following the endoscopic intervention. This is the largest cohort of sexually active males being assessed for sexual dysfunction following endourological procedures. This is particularly relevant to our community and urology practice, where the concern about erectile dysfunction following endoscopic procedures is quite prevalent. The use of standardized questionnaires allowed for standardized assessment of LUTS and sexual function as perceived by the patients. All patients recruited were available for the duration of the study with no loss to follow-up. There have been some previous attempts to evaluate the possible impact of endourological procedures on sexual function. In a study by Stav and colleagues, the authors recruited 100 patients (78 men and 22 women) undergoing diagnostic cystoscopy, of whom only 51 were sexually active (45 men and 6 women). The authors evaluated the impact of cystoscopy on sexual function using the Erectile Dysfunction Intensity Score (EDIS) questionnaire administered immediately before, immediately after, and 1, 2 days, 2 and 4 weeks following cystoscopy. The authors also used additional questionnaires for evaluation of LUTS, anxiety and pain levels, and quality of life. Stav and colleagues reported a decline in libido affecting 55 % of sexually active patients (25/45 of men and 3/6 of women). Cystoscopy was also associated with a decreased Erectile Dysfunction Intensity Score from 15.6 to 9.26 during the first 2 weeks ($P = 0.04$). One month after cystoscopy, however, libido, sexual satisfaction, and EDIS returned to baseline in all their patients. The authors concluded that rigid cystoscopy leads to a transient impairment in sexual performance and libido [1]. In our group of patients undergoing cystoscopy and other endourological procedures, the IIEF-5 score did not change significantly at 10 or at 45–60 days compared to preoperative values. In fact, prior to the procedure, we had eight patients in the mild to moderate ED range and 32 in the mild ED range, while postoperatively 6 patients were classified in the mild to moderate ED range and 28 in the mild ED range.

In the current study, LUTS was assessed because there is a large body of epidemiologic and clinical evidence suggesting a correlation between LUTS and sexual dysfunction in men with BPH [3], in women [4], and also in patients with indwelling ureteric stents which can be associated with stent-related discomfort, LUTS, and as reported

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by some studies, an impact on sexual and erectile functions. One study by Sighinolfi and coauthors evaluated the impact of ureteral stents on male erection and female sexuality. The study included 50 patients (30 men and 20 women) undergoing ureteral stent placement. Sexual function and urinary symptoms were assessed using three questionnaires that were administered before stenting and 45–60 days after stent positioning, including the IIEF-5 for men, the Female Sexual Function Index for women (FSFI), and IPSS [2]. Sighinolfi and colleagues reported a decrease in the mean (±SD) IIEF-5 score from 23.2 (±1.27) (range 21–25) to 13.5 (±4.01) (range 8–24) post-endoscopy. Erectile function in men was significantly impaired ($P < 0.001$), and only 5 of 30 men reported an IIEF-5 score greater than 21. In another study, Leibovici and associates reported on the side effects associated with ureteral stents and their impact on sexual function and quality of life. The authors administered questionnaires that addressed irritative voiding symptoms, flank pain, hematuria, fever, loss of labor days, anxiety, sleep impairment, decreased libido, erectile dysfunction, dyspareunia, painful ejaculation, and a subjective overall impact on quality of life. The items were graded from 1 (minimal or no symptoms) to 5 (maximal symptoms). The questionnaires were filled at 2-weekly intervals following stent insertion until stent extraction [5]. Leibovici and associates found that of 75 sexually active patients of both genders, 47 male patients (62.6 %) reported impairment in sexual function of grade ≥3; this included pain, erectile dysfunction, decreased libido, and apprehension that intercourse with an indwelling stent may be harmful. Women had a more pronounced sexual impairment than men. Moderate to high decrease in libido was reported by 38 % of men. Erectile dysfunction was reported by 20 % of stented sexually active men. Painful intercourse was experienced by 32 % of sexually active men, with 12 men (46 %) reporting painful ejaculation of grade ≥2.

In our cohort, 28 patients had a ureteral stent placed. In this subgroup of our patients, and unlike the patients in the reports by Sighinolfi and Leibovici, no significant impact on sexual activity or function was noted. The IIEF-5 remained virtually unchanged preoperatively to 10 and 45 days postoperatively. The discrepancy between the findings of Sighinolfi et al., Leibovici et al., and our findings may be explained by the differences and changes in the lower urinary tract symptoms in these studies. Patients in Sighinolfi's cohort had no LUTS prior to the procedure. Leibovici and associates did not determine LUTS before stent placement, but there was a large proportion of patients reporting LUTS with a score 3 or more (on their 1–5 scale) after stent placement. Dysuria, urinary frequency, and urgency were reported by 40, 50, and 55 % of the patients, respectively. Flank pain, gross hematuria, and fever were reported by 32, 42, and 15 %, respectively. Anxiety and sleep disturbance were reported by 24 and 20 %, respectively, and 45 % of patients reported impairment in their quality of life. In our cohort, a large proportion of patients had significant LUTS prior to the endoscopic procedure, 40 patients were moderately symptomatic (with IPSS between 8 and 19), and 23 patients were severely symptomatic (with IPSS 20–35). The LUTS actually improved in our patients in the non-stented group, with the mean IPSS decreasing to 2.0 at 10 days and 1.5 at 4 days, mainly due to treatment of the underlying pathology (e.g., extraction of lower ureteric or bladder stone).

In our 28 patients with ureteric stents, the IPSS did not change significantly preoperatively to 10 and 45 days postoperatively. It is likely that stent discomfort substituted the original pathology as a cause of LUTS in this subgroup of patients.

The sexual impairment reported in the studies by Sighinolfi and Leibovici seems directly related to the new onset of LUTS caused by the indwelling stents. Indeed, Sighinolfi concludes that erectile dysfunction in men in his study was related to LUTS, whereas female sexuality impairment was related to stent-related psychological concerns. The relationship between LUTS and sexual dysfunction was also noted by Stav et al. [1], who reported an increase in mean IPSS (from 5.4 to 6.8, $P = 0.001$) following cystoscopy associated with a decline in libido and erectile function. Yet in the study by Sofer et al. [6], stent placement did not interfere with sexual function, which may be because of the very short duration during which the stents were left in this study.

In our study, we noted an inverse correlation between changes in IPSS and IIEF-5 scores in non-stented patients at 10 and 45 days postoperatively.

Conclusion

We conclude that cystoscopy and upper tract endoscopic procedures do not negatively impact erectile function and sexual activity. Our findings can be used in counseling patients considering endourological interventions.

Compliance with ethical standards

Conflict of interest None.

References

1. Stav K, Leibovici D, Goren E, Livshits A, Siegel Y, Linder A, Zisman A (2004) Adverse effect of cystoscopy and its impact on patient's quality of life and sexual performance. IMAJ 6:474–478
2. Sighinolfi MC, Micali S, De Stefani S, Mofferdin A, Grand M, Giacometti M et al (2008) Indwelling ureteral stents and

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sexual health: a prospective multivariate analysis. J Urol 178(1):229–231
3. Rosena RC, Giulianob F, Carsonc CC (2005) Sexual dysfunction and lower urinary tract symptoms (LUTS) associated with benign prostatic hyperplasia (BPH). Eur Urol 47:824–837
4. Hansen BL (2004) Lower urinary tract symptoms (LUTS) and sexual function in both sexes. Eur Urol 46:229–234
5. Leibovici D, Cooper A, Lindner A, Ostrowsky Regina, Kleinmann Judy, Velikanov Sergey et al (2005) Ureteral stents: morbidity and impact on quality of life. IMAJ 7:491–494
6. Sofer M, Yehiely R, Greenstein A, Bar-Yosef Y, Matzkin H, Chen J (2012) Endourological procedures and sexual dysfunction: a prospective multivariate analysis. BJUI 109(2):250–253