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Original article

Comparison of impact of monopolar versus bipolar resection of the prostate on erectile function in patients with benign hyperplasia of the prostate

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KEYWORDS

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Abstract

Introduction and Objective: The incidence of erectile dysfunction (ED) after TURP for BPH is still debated. Current study aims at comparing the impact of monopolar and bipolar TURP on the sexual function of male patients with LUTS, using the IIEF EF-domain score (questions 1–5, 15) and to identify statistical risk factors associated with development of post-operative ED.

Patients and methods: Between April 2014 and May 2015, 102 patients underwent TURP for symptomatic BPH. Sixty on underwent TURP by the monopolar technique and 41 by the bipolar technique. Patients were assessed on the day before the surgery by IIEF and followed up 3 and 6 months postoperatively, using the same scoring system.

Results: On a 6 month follow up, 13 patients (22.4%) in the monopolar group and 12 (30%) in the bipolar group, experienced clinical change in their EF score. Among risk factors studied, only diabetes, intraoperative capsular perforation and preoperative use of PDE5I had a statistically significant impact on the EF score. No statistically significant difference in IIEF score and EF domain score was observed between the patients who underwent TURP by the monopolar technique, compared to those patients in which the bipolar one was used; whether at three months (p value 0.33) or at six months (p value 0.397).

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Conclusion: No statistical difference could be detected between monopolar and bipolar TURP, regarding the risk of developing post-operative ED. However, a higher incidence of ED should be anticipated in patients with DM, intraoperative capsular perforation and preoperative use of PDE5I.

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Introduction

Conventional transurethral resection of the prostate (TURP) represents the gold standard for treatment of lower urinary tract symptoms (LUTS) caused by benign prostatic hyperplasia (BPH). It is considered a safe procedure, as regards sexual function. However, most of the published literature reveal an incidence of postoperative ED following TURP, ranging from 4% to 40% [1]. The implementation of technological advancements, such as bipolar technology and laser energy were expected to minimize these risks [2].

Patients and methods

Between April 2014 and May 2015, 102 patients (98 completed follow-up) underwent TURP in the Department of Urology, Cairo University, for the treatment of symptomatic BPH. These patients were part of a prospective, non-randomized clinical trial, aiming to compare the impact of monopolar and bipolar TURP on the sexual function of male patients with LUTS, using the IIEF self-questionnaire scoring system. The study also aimed to identify statistical risk factors associated with development of post-operative ED.

Patients included in the study are patients with LUTS scheduled for surgery (refractory urine retention, haematuria, recurrent urinary tract infections, renal impairment and bladder stones secondary to BPH) and had to have stable sexual partners for 6 months before surgery and for 6 months postoperatively until time of follow-up. An EF score ≥ 6 was necessary for inclusion in the study. Known cases of prostate cancer or patient with neurologic disorders were excluded. Patients were assessed on the day before the surgery by IIEF self-questionnaire scoring system, and followed up 3 and 6 months postoperatively, using the same scoring system.

Monopolar technique used high frequency current with a maximum cutting power of 130 W, starting at the ventral parts of the gland (between 11 and 1 o'clock position), followed by both lateral lobes, then the mid-lobe, and finishing with apex. Bipolar TURP involved the use of a continuous flow resectoscope and saline irrigation, using a plasma kinetics device with a maximum power of 200 W at a radio-frequency wavelength of 320–450 kHz and a voltage range of 254–350 V. The loop consisted of an 80/20 platinum/iridium alloy electrode with active and return electrode on the same axis (axipolar) separated by a ceramic insulator. At the end of either procedure, a 24 Fr. 3-way catheter was inserted. Saline irrigation was continued at a rate sufficient to maintain a clear returning fluid and the catheter was removed if the urine was clear in the absence of irrigation. The

patient was subsequently given a voiding trial and discharged from the hospital, as soon as he voided spontaneously.

Statistical methods

Data analysis was performed using SPSS program, version 22. Numerical data were presented in terms of range, mean, standard deviation, median and interquartile range (IQR). Categorical data were summarized as percentages. All p-values were two sided and considered significant when p-values were less than 0.05.

Results

The study was conducted on 102 patients; 61 underwent TURP by the monopolar technique and 41 by the bipolar technique. Ninety-eight patients completed the follow-up period (58 in the monopolar arm and 40 patients in the bipolar arm). Demographic and operative patients' data are presented in Tables 1 and 2. When comparing both groups, as regards patient demographics, the mean age was higher and the mean EF domain of IIEF score was lower in the bipolar arm. When comparing the operative data, the operative time was longer and the weight of the specimen was higher in the bipolar group.

On a 3 month of follow up, only 15 patients out of 58 (25.9%) in the monopolar group and 14 patients out of 40 (35%) in the bipolar group experienced a clinical change in their EF score domain. (Table 3).

On a 6 month of follow up, only 13 patients (22.4%) in the monopolar group and 12 (30%) in the bipolar group experienced a clinical change in their EF score. So, minimal clinically important change in the EF score on a 6 months follow up, occurred only in 25 (25.5%) patients (Table 3). The remaining 73 (74.5%) patients retained the clinically perceived preoperative EF score. We considered minimal clinically important change to be a change in the EF domain by ≥ 4 [3]. Among risk factors studied, only diabetes, intraoperative capsular perforation and preoperative use of PDE5I were found to have a statistically significant impact on the EF score among all patients with post-operative ED (Table 4).

No statistically significant difference in IIEF and EF scores was observed between the patients who underwent TURP by the monopolar technique, compared to those patients in which the bipolar one was used; whether at three months (p value 0.33) or at six months (p value 0.397) (Table 3).

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