EDITORIAL COMMENT

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Bipolar and monopolar transurethral resection of the prostate are equally effective and safe in this high quality randomized controled trial

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COMMENT

Numerous surgical techniques are approved for the surgical treatment of benign prostatic obstruction (BPO). They include minimally invasive procedures such as the newly introduced prostatic urethral lift and water vapor thermal therapy, transurethral resection, vaporization or enucleation of the prostate and open or laparoscopic/robotic assisted prostatectomy and have been recommended by the guidelines of the most distinguished scientific organizations (1, 2). In clinical practice for many decades, transurethral resection of the prostate (TURP) remains the standard by which subsequent surgical modalities for the treatment of BPH have been compared.

Guidelines recommend that either monopolar or bipolar TURP may be used, for patients with a moderately enlarged prostate, of up to 80 cc, depending on the surgical expertise of the practitioner (1, 2). In bipolar TURP (B-TURP), the energy does not travel through the body to reach a skin pad, as is the case for monopolar TURP (M-TURP). It is confined between the active and passive poles situated on the resectoscope tip (resection loop) (3). It may be performed in 0.9% NaCl solution and does not require the use of isoosmolar solutions (mannitol, glycine), greatly reducing the risk for acute dilutional hyponatremia and the TUR syndrome. This is especially important for larger prostates requiring prolonged surgery (4).

Many studies have been published in recent years exploring the use of B-TURP and comparing it with M-TURP. Systematic reviews have also compared the two techniques, confirming comparable efficacy for both and a reduced risk for acute dilutional hyponatremia and TUR syndrome for B-TURP (5, 6). Although some studies indicate a reduced risk for blood transfusion and clot retention with B-TURP, the evidence is not strong to make a recommendation in this regard (2, 7).

There are different bipolar resection devices and no evidence in favor of a specific system (3). In the present study, Otaola-Arca H. et al. (8) used the Plasma KineticTMSuperpulse generator as the energy source for bipolar TURP (PK-TURP) and prospectively compared it with M-TURP. They included patients with refractory LUTS and/or complications associated with BPO and a prostate volume < 80 cc. Of 100 randomized patients, 84 were included in the final analysis. Patients were evaluated after 1, 3, 6 and 12 months and the efficacy variables were improvement in the International Prostate Symptom Score (IPSS), quality of life question of the IPSS, Qmax, postvoid residue, prostate volume and sexual function measured by the IIEF-5. The authors showed comparable efficacy and safety outcomes for the two methods. The only difference observed was a greater improvement of the QoL score in patients who underwent PK-TURP, which was minor and considered clinically insignificant. The efficacy results of this study are in accordance with a recent meta-analysis by Cornu et al. that showed no differences comparing the two techniques (9). However, the meta-analysis showed an increased risk for dilutional hyponatremia and bleeding complica-

Table 1 - Efficacy and safety of PK-TURP vs M-TURP in RCTs.

Series	Patients (N)	Follow up (months)	Efficacy	Safety
Otaola-Arca et al, 2020 (8)	84	12	NS*	NS
de Sio et al., 2006 (14)	70	12	NS	NS
Seckiner et al., 2006 (15)	48	12	NS	More hyponatremia in M-TURP
Nuhoglu et al., 2006 (16)	54	12	NS	More hyponatremia in M-TURP
Yoon et al., 2006 (17)	102	12	NS	NS
Eturhan et al., 2007 (18)	240	12	Greater Qmax improvement with PK-TURP	More bleeding in M-TURP
Iori et al., 2008 (19)	51	12	NS	NS
Kong et al., 2009 (20)	102	12	NS	More hyponatremia and Hb decline in M-TURP
Bhansali et al., 2009 (21)	67	12	NS	More hyponatremia in M-TURP
Autorino et al., 2009 (22)	70	48	NS	NS
Shinghania et al., 2010 (23)	60	12	Greater Qmax improvement with PK-TURP	NS
Xie et al., 2012 (12)	220	60	NS	More hyponatremia and Hb decline in M-TURP
Giulianelli et al., 2013 (24)	160	36	NS	More Hb decline in M-TURP

Legends: *QoL question statistically different favoring PK-TURP
RCTs= randomized control trials; NS= significant; **IPSS**= International Prostate Symptom Score; **Qmax**= maximum flow rate; **M-TURP**= monopolar transurethral resection of the prostate; **PK-TURP**= Bipolar TURP using the Plasma Kinetic generator; **Hb**= Hemoglobulin
Efficacy parameters= Qmax, IPSS, postvoid residue.
Safety parameters = Bleeding (transfusion, clot retention, hemoglobin decline), TUR syndrome, hyponatremia
NOTE: not all studies evaluated all parameters.

tions (clot urinary retention and transfusion rate) with M-TURP (9).

An important aspect of the present study was the strict methodological criteria adopted. Based on the Jadad scale that assess the methodological quality of randomized control trials, most previous studies comparing PK-TURP with M-TURP had one or more methodological issues (10). The present study has a very high methodological design based on the Jadad score (score 4/5). However, it has the limitation of providing a relatively short follow-up of one year. Few studies provided long-term results such as those from Al-Rawashdah et al. (11) and Xie, et al. (12), who followed the patients for at least 3 years and showed comparable results in the long-term (Table-1). As recommended by Cornu et al. (9) "Further studies are needed to provide long-term comparative data and head-to head comparisons" and we can only hope that the authors will continue to follow these patients regularly and report on the long-term results.

Another potential problem that deserves attention is the fact that the study was conducted in a university hospital and surgeries were performed by practitioners with varying levels of experience. It certainly might be seen as a limitation, but the fact that it provides the outcomes of both surgical techniques in the daily practice is relevant and the fact that a sub-analysis based on the level of surgical experience did not show differences in primary and secondary outcomes is reassuring.

Finally, since cost-effectiveness studies are very important to determine the value of technologies and treatments, and guide public policies for patient management, it is a little frustrating that the authors did not look at this aspect in the study. A recent systematic review comparing M-TURP with B-TURP using a different energy source favoured the B-TURP. (13) There are no data cost--effectiveness analysis for PK-TURP and this could be assessed by the authors in future studies.

CONFLICT OF INTEREST

None declared.

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