

Monopolar vs. bipolar TURP: assessing their clinical advantages

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See related article on page 385.

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For over 8 decades, transurethral resection of the prostate (TURP) has been considered the cornerstone of surgical management for benign prostatic obstruction (BPO), due to the procedure's outstanding, well-documented, long-term treatment efficacy.¹ Nevertheless, the morbidity of the procedure, notably TURP-syndrome, bleeding and urethral stricture, remains significant at 11.1%, based on a prospective, multicentre study of 10 654 men.²

In recent years, other techniques, including the use of bipolar TURP (B-TURP) have challenged conventional monopolar TURP (M-TURP). With the use of a bipolar generator, both the active and return electrodes are contained within the instrument. The principal advantage is the possible use of isotonic irrigating fluid, such as normal saline or lactate ringer, which eliminates the risk of electrolytic disturbance from systemic uptake, such as TUR syndrome. Nevertheless, one must be fully aware that isotonic irrigants will *not* be able to prevent severe cardiac/pulmonary failure in cases of large volume uptake. Accordingly, B-TURP offers the *theoretical* advantage to provide more time to perform resection and to control hemostasis without compromising safety. Unfortunately, the true merits of this modification of conventional M-TURP remain unclear to many urologists.³

To date, several randomized trials comparing bipolar and monopolar TURP have been conducted. Although a few trials have suggested that bipolar resection is effective and potentially safer for the treatment of benign prostatic hyperplasia, most others are inconclusive and fail to demonstrate superior outcomes for B-TURP.^{4,5} The most noteworthy study by Mamoulakis and colleagues provides the largest, multinational, meta-analysis of 16 randomized, controlled-trials (RCTs) with 1406 patients.⁶ In short, no clinically rel-

evant differences in short-term (12 months) efficacy were detected. Data on follow-up beyond 1 year are scarce for B-TURP, which precludes an evaluation of long-term efficacy. Interestingly, the authors observed that treating 50 and 20 men with B-TURP would result in 1 less TURP-syndrome and 1 less clot retention, respectively.

In this present, multicentre, Canadian, single blind randomized controlled trial (RCT), the authors compare the outcomes of B-TURP and M-TURP in 43 men with a follow-up of 6 months.⁷ No significant differences in operative time or mean resection time were observed between the two procedures. The functional outcomes were significantly improved by both procedures but with no difference detected between the bipolar and monopolar arms. Similarly, the complications in both patient groups were comparable.

Of note, it was initially suggested that B-TURP may be associated with a higher incidence of urethral strictures.⁸ The current study did not find a significantly higher incidence of urethral strictures in the bipolar group.⁷ This finding is consistent with others and adds to the body of evidence that urethral stricture might not be a concern specifically associated with bipolar technique; perhaps more of a relationship to resectoscope sheath diameter and postoperative catheter duration.

Unfortunately, the study by Méndez-Probst and colleagues,⁷ like many of the preceding trials, fails to demonstrate any clinical benefit for B-TURP. The authors mention in their discussion that enrollment of the study was suspended, as the investigators were unable to obtain the same loop from the manufacturer. This is likely what limits the number of men enrolled in the study and undermines the effort of the investigator into an otherwise well designed trial.

Considering the current body of knowledge of B-TURP, no clinical advantages have been concretely demonstrated for reducing operative time or adverse events (transfusions, retention after catheter removal or urethral complications). Particularly in a cost-aware, Canadian health care system,

the economic analysis for bipolar technology must be considered with respect to other minimally invasive TURP alternatives, including Holmium and Greenlight laser systems, which have documented cost-benefit to M-TURP.⁹

To conclude, despite its growing use, B-TURP has not yet evolved to a “new standard” of TURP. A well-designed, multicentred RCT with long-term follow-up and cost analysis is still needed.

Competing interests: Dr. Zorn has been a consultant for AMS (American Medical Systems).

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