Introduction: This study aimed to evaluate a prospective, long term, randomized comparison between bipolar plasma vaporization (BPV), monopolar and bipolar transurethral resection of the prostate (TURP) concerning surgical efficacy, complication rate and follow-up results.

Patients and Methods: A total of 510 patients with benign prostatic hyperplasia (BPH), Qmax < 10 ml/s, IPSS > 19 and prostate volume between 30 and 80 ml were enrolled in the trial. All cases were evaluated preoperatively and at 1, 3, 6, 12 and 18 months after surgery by IPSS and Qmax.

Result: Each study arm including 170 cases emphasized similar preoperative parameters. The operation time was significantly shorter only for BPV patients, while the catheterization period and hospital stay were reduced for BPV, followed by bipolar and monopolar TURP. The mean hemoglobin drop, intraoperative bleeding and the capsular perforation rate were significantly decreased in the BPV series by comparison to the bipolar and monopolar TURP study arms. The postoperative hematuria and blood transfusion rate were significantly higher in the monopolar TURP group. The rate of irritative symptoms was similar in the 3 study arms. During the 1, 3, 6, 12 and 18 months follow-up, the BPV series emphasized significantly superior parameters in terms of IPSS and Qmax. The bladder neck sclerosis and re-treatment rates were significantly lower in the BPV group.

Conclusions: BPV represents a valuable endoscopic treatment alternative for BPH patients, with superior efficacy and satisfactory complication rate. The long term follow-up emphasized durable improvements in terms of postoperative parameters for BPV.