67

Miyazaki H[1], Hirano Y[2], Kato S[3], Ioritani N[4], Ichikawa T[5], Takamoto H[5], Homma Y[1]
1. *Department of Urology, University of Tokyo Hospital,* ***2.*** *The Fraternity Memorial Hospital,* ***3.*** *Kato Urological Clinic,* ***4.*** *JCHO Sendai Hospital,* ***5.*** *Kurashiki Medical Center*

THE EFFICACY AND SAFETY OF CONTACT LASER VAPORIZATION OF THE PROSTATE (CVP) IN TREATING BENIGN PROSTATE HYPERPLASIA

Hypothesis / aims of study

Transurethral resection of the prostate (TUR-P) is still considered to be the gold standard of surgery for benign prostatic hyperplasia (BPH). However, during the last few decades, several laser devices working at various wavelengths have been shown to be as efficacious as TUR-P. Recently vaporization of the prostate using high power 980nm diode laser has become available for prostatic surgery. The 980nm diode laser is more effective in ablation performance compared to 532nm green light laser. The excellent haemostasis of the laser provides clear endoscopic vision during the procedure. Of two types of fibers, an end-firing fiber can be used in a contact mode and attain similar clinical outcomes and lower complication compared with a side-firing fiber. [1] The aim of this study is to assess the efficacy and the safety of contact laser vaporization of the prostate (CVP) for BPH patients.

Study design, materials and methods

A prospective clinical trial was performed using 76 men with symptomatic BPH. Inclusion criteria were International Prostate Symptom Score (IPSS) 8 or greater, Quality of Life (QOL) index 2 or greater, prostate volume 20ml or greater, and the peak flow rate (Qmax) 15ml per second or less. The patients underwent CVP procedure with high power diode laser of 980nm at 4 medical institutions from August, 2013 to February, 2014. A 300W diode laser system was used with an end-firing fiber in a contact mode. A 23 Fr continuous flow laser cystoscope was used with 0.9% saline irrigation. Laser vaporization was started at the median lobe from the level of bladder neck to the verumontanum. The lateral lobes were then vaporized in a clockwise or counter-clockwise manner. A peak power of 120~250W was used and the power was decreased to 80W near the external urethral sphincter. The endpoint of the procedure was to achieve a post-TURP-like cavity. A Foley catheter was inserted and left for 2 or 3 days. Patients were followed up at 2, 4, 8, 12, and 24 weeks postoperatively. At 2, 4, and 8 weeks patients were assessed for early postoperative complications. At 12 and 24 weeks patients were evaluated by urinalysis, uroflowmetry, post-void residual urine (PVR) measurement with abdominal ultrasound. Patients were also asked to fill out IPSS, QOL score, and Over Active Bladder Symptom Score (OABSS). Prostate volume was estimated by trans-abdominal or trans-rectal ultrasound at 24 weeks. The primary end point was the proportion of patients with >50%-reduction of IPSS at 24 weeks.

Results

A total of 76 patients were eligible for the study. The mean age (± SD) was 69.8 (± 6.0) years. The patients showed significant improvements in the IPSS, QOL score, OABSS, Qmax, PVR, and prostate volume after 12 weeks and 24 weeks. (Table1). The proportion of patients with >50%-reduction of IPSS at 24 weeks was 84.2% (95 percent confidence interval, 74.0-91.6). The result indicated comparable efficacy of CVP with TUR-P, which achieves an 80% rate of patients with >50%-reduction of IPSS at 24 weeks. [2] Intraoperative and postoperative complications were bladder injury (N = 1), bladder neck contracture (4), and transient urinary retention (20). Urinary retention was aggregated at one institution (16). Only four cases of retention (8.7%) were reported among 46 patients treated at the other three institutions. No transfusion was needed.

Table1. Preoperative and postoperative clinical parameters

Parameter		Mean ± SD	P value
I-PSS	Baseline	21.8 ± 5.6	
	12 weeks	8.4 ± 5.6	p<0.0001
	24 weeks	6.4 ± 5.4	p<0.0001
QOL	Baseline	5.0 ± 0.9	
	12 weeks	2.4 ± 1.6	p<0.0001
	24 weeks	1.8 ± 1.6	p<0.0001
OABSS	Baseline	6.0 ± 2.9	
	12 weeks	4.8 ± 2.9	p=0.0018
	24 weeks	3.4 ± 2.6	p<0.0001
Qmax (mL/sec)	Baseline	8.16 ± 3.27	
	12 weeks	15.29 ± 7.62	p<0.0001
	24 weeks	15.68 ± 7.72	p<0.0001
PVR (mL)	Baseline	92.88 ± 63.00	
	12 weeks	39.42 ± 35.56	p<0.0001
	24 weeks	36.63 ± 35.83	p<0.0001
Prostate volume (mL)	Baseline	53.79 ± 19.93	
	24 weeks	26.15 ± 13.24	p<0.0001

IPSS; International Prostate Symptom Score, QOL; Quality of life index, OABSS; Over Active Bladder Symptom Score, Qmax; peak flow rate, PVR; post-void residual urine.

Interpretation of results

The study results indicated comparable efficacy of CVP, a new prostatectomy using contact 980nm diode laser, with TUR-P for treating BPH. Adverse events were transient and minimal.

Concluding message

CVP is an effective and safe alternative to TUR-P and existing laser prostatectomies in the treatment of BPH, although long-term results are still needed.

References

1. Shaker HS et al. J Urol 2012; 187: 575-579
2. Donovan JL et al. J Urol 2000; 164: 65-70

Disclosures

Funding: This study was funded by Integral Corporation. **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Ethics committee at each participating institution (The Fraternity Memorial Hospital, Kato Urological Clinic, JCHO Sendai Hospital, and Kurashiki Medical Center) **Helsinki:** Yes **Informed Consent:** Yes