

THE CUT-OFF VALUE OF POST VOID RESIDUAL VOLUME FOR PREDICTING TREATMENT OUTCOMES

Hypothesis / aims of study

Post void residual (PVR) urine volume is a well-known parameter of LUTS/BPH, but the cut-off level of volume predicting poor outcomes is uncertain. We evaluated the cut-off value of PVR for predicting surgical outcomes of GreenLight HPS™ 120-W laser photoselective vaporization prostatectomy (HPS-PVP).

Study design, materials and methods

A total of consecutive 193 patients underwent HPS-PVP. Men aged ≥ 50 years with LUTS (IPSS ≥ 8) and prostatic enlargement (≥ 25 ml) were divided into two subgroups based on bladder voiding efficiency (BVE) $>75\%$ (group A) and $\leq 75\%$ (group B). BVE was calculated by voided volume divided by voided volume plus post void residual. BVE was measured with one or more preoperative uroflowmetric results in patients with voided volume ≥ 150 ml and maximum flow rate (Qmax) ≤ 15 ml/s.

The surgical efficacy was assessed from the ratio of International Prostate Symptom Score (IPSS) (post/pre), the difference of Qmax (post – pre), the difference of IPSS subscores of quality of life (QoL) (pre – post) at 3, 12, and 36 mo postoperatively.

Results

The preoperative mean PVR was 44.2 ml in group A and 158.7 ml in group B. There were significant improvements in all efficacy variables at postoperative 3, 12, and 36 mo. The improvements of the differences in Qmax were higher in group A than group B at all time points of follow-up. The ratio of IPSS was significantly lower in group A than group B at 3 mo only. There was no difference in the difference of QoL between two groups. The multivariate logistic regression analysis showed that age at operation and BOOI <40 revealed significant correlations with BVE $\leq 75\%$, but not with bladder contractility index (BCI) <100 or prostate volume. The area of under the curve of receiver operator characteristic of BVE was 0.654 for the diagnosis of BOOI <40 . The BVE cut-off value of 75% shows highest sensitivity (70.4%) and specificity (60.5%) for predicting BOOI <40 .

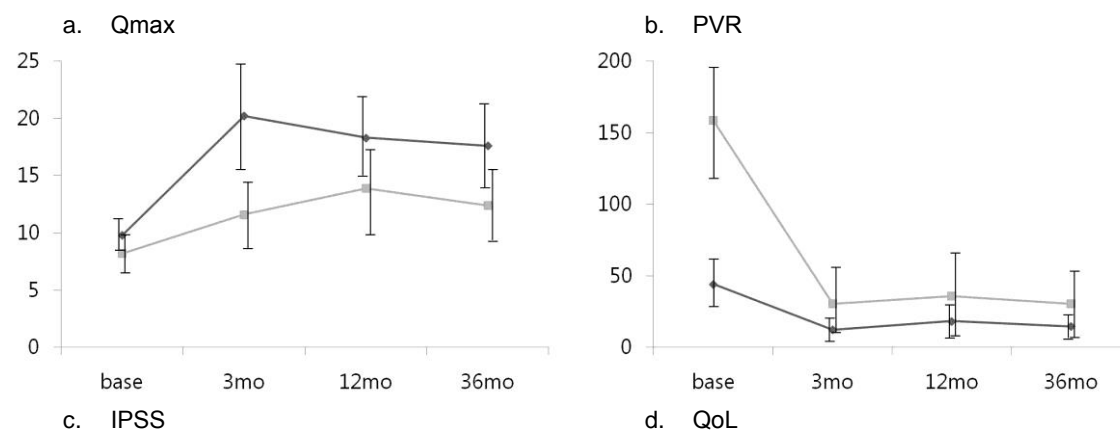
Interpretation of results

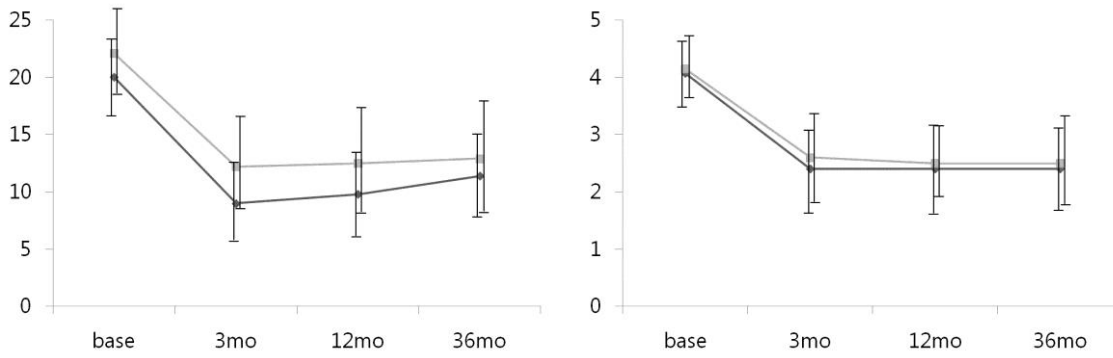
BVE was a significant prognostic factor of surgical efficacy of HPS-PVP, and it seems to be correlated with BOOI, rather than bladder contractility index. The bladder outlet obstruction was related to the development of increasing amount of PVR urine. The degree of bladder emptying is clinically more significant rather than the absolute value of PVR. PVR did not correlate well with subjective symptoms.

Concluding message

Our results suggested that large PVR urine volume may predict a relatively lower improvement of surgical outcomes after HPS-PVP. The cut-off value of PVR in predicting surgical outcome is 1/4 or more. This value of PVR is correlated with BOOI <40 .

Fig 1. Improvements of postoperative clinical parameters during follow-up (mean \pm SD)





Black lines indicate group A (BVE > 75%), gray lines indicate group B (BVE ≤ 75%)

Table 1. Comparisons of surgical outcomes between two groups (mean ± SD)

	3 mo	<i>p</i> value	12 mo	<i>p</i> value	36 mo	<i>p</i> value
Qmax (post-pre)		<0.001*		0.044*		0.033*
A	10.4±8.7		8.2±6.1		8.1±6.9	
B	3.2±6.4		5.4±8.0		4.0±6.4	
IPSS (post/pre)		0.020*		0.392		0.672
A	0.45±0.33		0.48±0.36		0.59±0.39	
B	0.59±0.38		0.55±0.43		0.63±0.56	
QoL (pre-post)		0.235		0.953		0.420
A	1.7±1.4		1.58±1.7		1.5±1.5	
B	1.4±1.6		1.56±1.5		1.2±1.8	

* P < 0.05, two-sided.

Disclosures

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