Cost Effectiveness of GreenLight Photoselective Vaporization of the Prostate Compared to Monopolar/Bipolar Transurethral Resection of the Prostate for Benign Prostatic Hyperplasia

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INTRODUCTION

- The gold standard surgical treatment for moderate to severe BPH has been transurethral resection of the prostate (TURP).
- TURP has been associated with prolonged hospitalization and increased rates of complications.
- Greenlight PVP is an outpatient that has better perioperative safety, shorter hospitalization time, faster symptomatic improvement, and decreased morbidity compared to TURP.

METHODS

- A retrospective analysis was conducted of perioperative hospital costs of patients who underwent GreenLight PVP, TURP, or TURP with Olympus Power Button between 2013-2015 at the Toronto Western Hospital
- Two-hundred and two patients (corresponding to 203 visits) presenting with lower urinary tract syndromes (LUTS) due to benign prostate hyperplasia (BPH)who underwent treatment with either Greenlight PVP (n=56), TURP with Olympus Power Button (n=29), or TURP (n=118) were included in the analysis.

AIM

The objective of this study was to compare the costs of Greenlight PVP versus TURP, and TURP with Olympus Power Button from a hospital perspective.

RESULTS

Variable	Greenlight PVP (n=56)	Olympus Power Button (n=29)	TURP (n=118)
Age, years	72 (10)	71 (9)	71 (8)
Patients on anti-coagulation therapy, N (%)	15 (27)	7 (24)	18 (15)
Patients with past medical therapy for BPH, N (%)	49 (88)	26 (90)	105 (89)
Prostate cancer, N (%)	5 (9)	0 (0)	8 (7)
Charlson Comorbidity Index	0.86 (1.24)	0.93 (1.75)	0.95 (1.33)
No visits, N (%) Outpatient Inpatient	52 (93%) 4 (7%)	0 (0%) 29 (100%)	7 (6%) 111 (94%)
Length of stay, days	1.03 (0.27)	1.45 (0.57)	1.67 (0.56)
Distance to clinic, km	18.81 (27.87)	11.11 (10.21)	28.10 (92.73)

Table 1 – Patient Characteristics

- Mean age and history of BPH treatment were similar in all groups.
- More men undergoing GreenLight PVP (27%) were on anti-coagulation therapy versus
- Olympus Power Button (24%) and TURP (15%).
- More men were treated on an outpatient basis with Greenlight PVP (93%) versus Olympus Power Button (0%) and TURP (6%).

Variable	Mean (SD) ($)			Difference in cost*			
	Greenlight PVP n=56	Olympus Power Button n=29	TURP n=118	(Greenlight-TURP)	P value	(Greenlight-Olympus Power Button)	P value
Variable Direct							
Labor	847.55 (284.66)	1,766.73 (749.64)	1,651.20 (635.08)	(803.65)	<0.01	(919.18)	<0.01
Supplies	634.85 (357.69)	721.93 (341.56)	778.87 (335.93)	(144.02)	0.01	(87.08)	0.28
Patient specific supplies	2.19 (8.87)	25.29 (88.10)	20.93 (50.01)	(18.74)	0.01	(23.10)	0.05
Other	1.36 (6.53)	11.46 (7.40)	10.56 (7.98)	(9.20)	<0.01	(10.10)	<0.01
Fixed Direct							
Labor	144.83 (65.43)	319.44 (138.17)	319.10 (121.15)	(174.27)	<0.01	(174.61)	<0.01
Other	23.50 (8.05)	47.29 (17.80)	45.95 (16.70)	(22.45)	<0.01	(23.79)	<0.01
Building equipment	123.92 (62.41)	146.35 (56.92)	162.90 (49.40)	(38.98)	<0.01	(22.43)	0.11
Variable Indirect	719.96 (246.00)	1,108.21 (411.62)	1,124.87 (349)	(404.91)	<0.01	(388.25)	<0.01
Fixed Indirect	376.37 (157.04)	485.95 (172.62)	551.49 (152.50)	(175.12)	<0.01	(109.58)	<0.01
Total Cost	2,874.53 (938.04)	4,632.65 (1,671.27)	4,665.87 (1,473.93)	(1,791.34)	<0.01	(1,758.12)	<0.01

Table 2 – Mean Total Cost per Patient

- PVP was the least costly option, with an average cost $1,791 less than TURP and $1,758 less than Olympus Power Button.
- Brackets indicate that GreenLight is less costly. Costs do not include the cost of readmission.

Predictors of total costs (Based on a regression analysis)

- Type of procedure and Charlson Comorbidity Index were independent predictors of total costs (P<0.01).
- After adjusting for age, comorbidity and distance to clinic, GreenLight PVP was associated with a decrease in costs of $1,796 versus TURP.
- Olympus Power button was associated with a decrease in costs of $27 versus TURP.
- After adjustment for covariates, those with a Charlson Comorbidity Index of 2 or more had a $780 increase in costs.

CONCLUSIONS

- Greenlight PVP cost $1,758 less than Olympus Power Button, and $1,791 less than TURP.
- The savings in costs are mainly attributed to costly inpatient hospitalizations associated with TURP and the outpatient nature of Greenlight PVP.

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