

Population-based assessment of retreatment and healthcare utilization after photoselective vaporization of the prostate or electrosurgical transurethral prostatectomy.

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Disclosures

- None

Acknowledgement

This investigator-driven research was supported by a grant from the St Josephs Hospital Foundation

Introduction

- Electrosurgical treatment of prostatic adenoma has been around since the 1870's.
- Numerous alternative surgical treatment options have been explored including transurethral photoselective vaporization of the prostate (PVP).
- Several meta-analyses of randomized trials comparing PVP to TURP have been published and high-quality randomized controlled trials (such as the GOLIATH study) have shown equivalent retreatment rates between GreenLight PVP and TURP at 2 years.
- However, clinical trials usually include centers of excellence and surgeons with considerable surgical experience, and the results may not represent real world results.

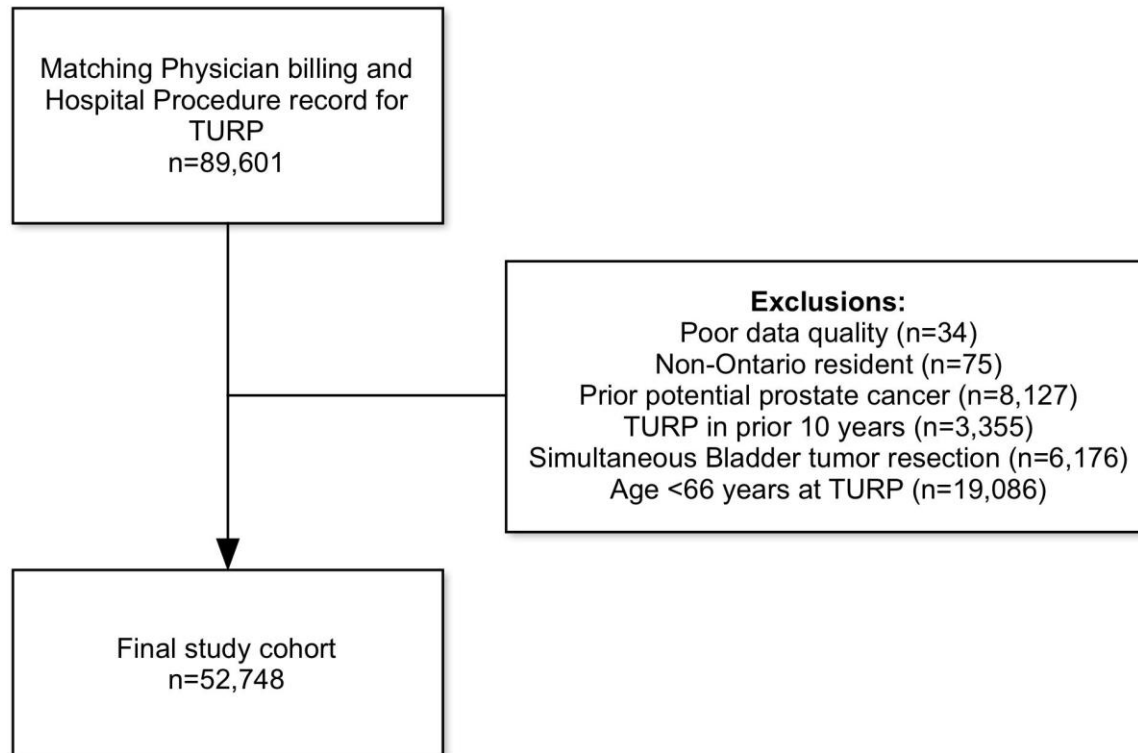
Objective

To compare the real-world healthcare utilization and repeat treatment rate among older men undergoing either an electrosurgical or PVP TURP.

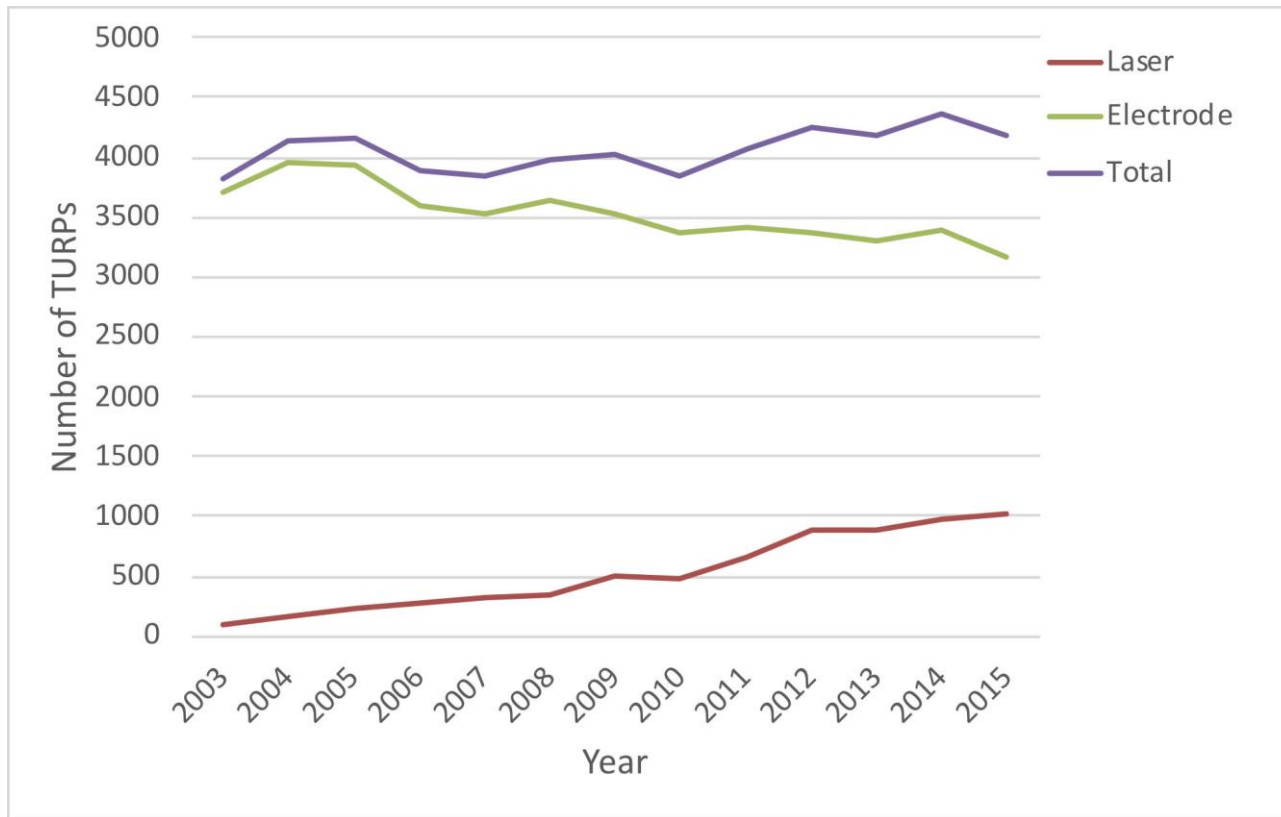
Methods

- We used existing population-based data from the province of Ontario (Canada) to conduct a retrospective cohort study.
- We identified all men who underwent a TURP between April 1, 2003 and March 31, 2016.
 - We identified these men using two independent databases to maximize our specificity
 - We excluded men with prior potential prostate cancer, a TURP/PVP in the prior 10 years, those with a simultaneous transurethral resection of a bladder tumor, and those <66 years of age.
- Primary exposure: type of endoscopic BPH surgery performed (electrosurgical resection versus PVP).
- Primary outcome: repeat TURP/PVP after the index procedure.
- Secondary outcomes: 30 day postoperative return to the emergency room or hospital admission, blood transfusion within 7 days after TURP/PVP, length of hospital stay, and intervention for urethral stricture or bladder neck contracture.

Results

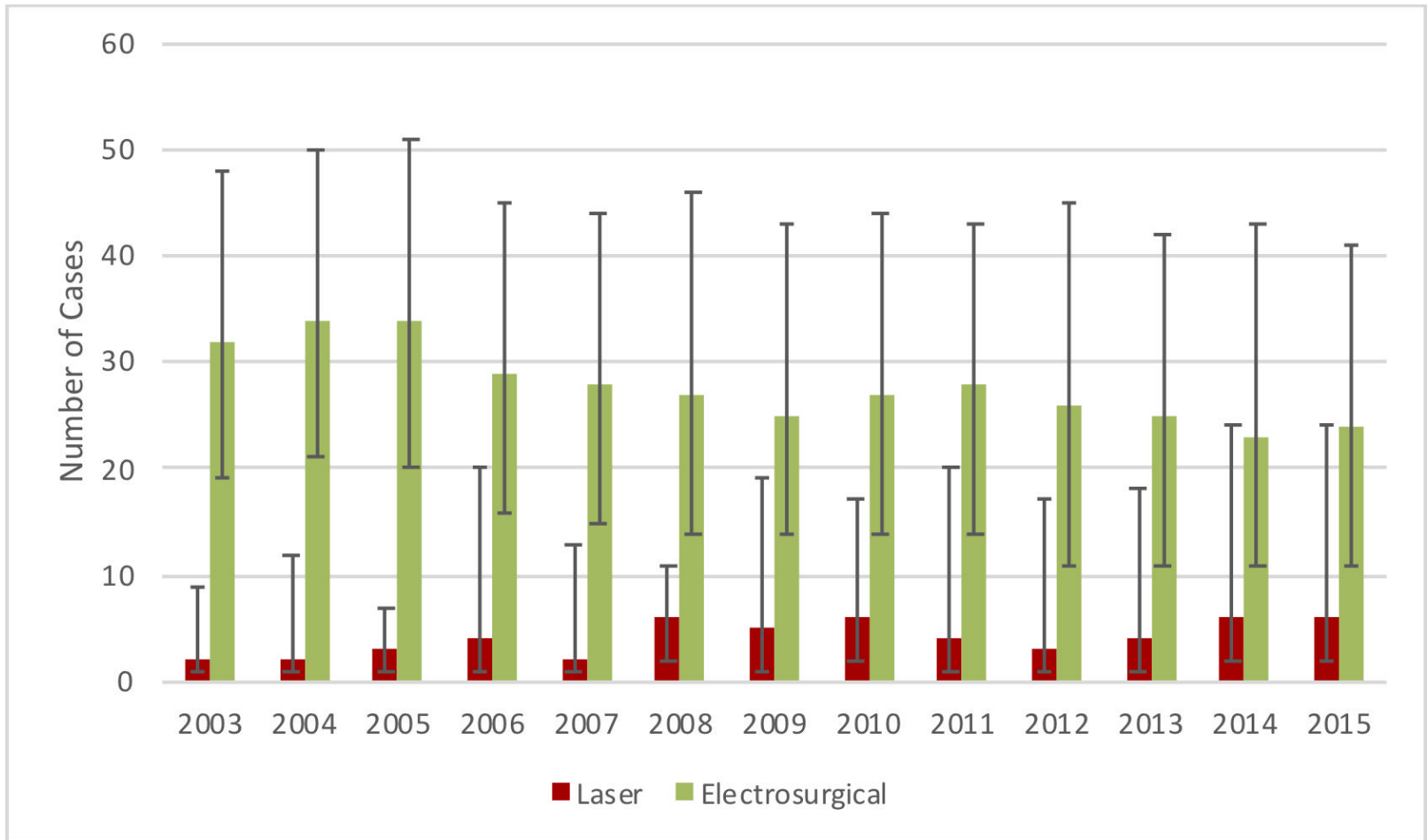


Results



The median follow-up of the entire cohort was 4.42 (IQR 2.22-7.58) years

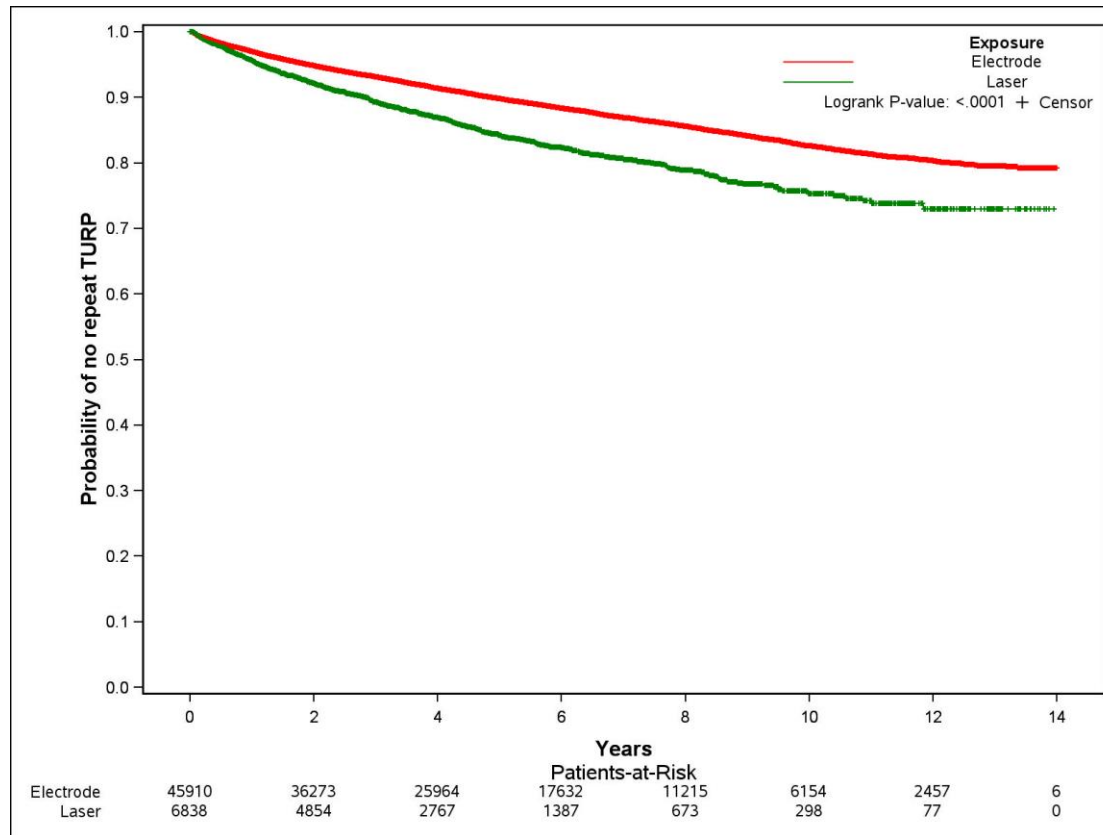
Results



Results

	Electrosurgical TURP N=45,910	PVP N=6,838	Standardized Difference
<i>Age</i>	75 (71-80)	75 (70-80)	5%
<i>TURP in academic hospital</i>	5664 (12.3%)	817 (11.9%)	1%
<i>Charlson comorbidity score</i>	0 (0-1)	0 (0-1)	1%
<i>Diabetes</i>	4490 (9.8%)	644 (9.4%)	1%
<i>BPH related complications presenting to hospital/ER in the 1 year prior to TURP</i>			
<i>Gross hematuria</i>	11204 (24.4%)	1342 (19.6%)	12%
<i>Urinary tract infection</i>	1826 (4.0%)	243 (3.6%)	2%
<i>Acute urinary retention</i>	20,868 (45.5%)	2435 (35.6%)	20%
<i>Preoperative urodynamics</i>	1556 (3.4%)	235 (3.4%)	0
<i>Preoperative medications used in the 6 months prior to TURP</i>			
<i>Prostate specific alpha-blockers</i>	20,214 (44.0%)	3,857 (56.4%)	25%
<i>5-alpha reductase inhibitors</i>	12595 (27.4%)	2975 (43.5%)	34%
<i>Anticoagulants</i>	6,504 (14.2%)	1196 (17.5%)	9%

Results



Results

		<i>Electrosurgical TURP</i>	<i>PVP</i>	<i>p value</i>
Primary outcome				
<i>Repeat TURP</i>	Absolute risk	5015/45910 (10.9%)	905/6,838 (13.2%)	
	Absolute difference (95% CI)	Reference	+2.3% (+1.5 to +3.2)	
	Event rate per 100 person-years (95% CI)	2.05 (1.99-2.11)	3.36 (3.14-3.59)	
	Unadjusted marginal cox model	Reference	1.54 (1.43-1.65)	<0.01
	Adjusted marginal cox model*	Reference	1.57 (1.38-1.78)	<0.01
	Secondary outcomes			
<i>Blood transfusion</i>	Absolute risk	1233/45,910 (2.6%)	43/6,838 (0.6%)	<0.01
	Absolute difference (95% CI)	Reference	-2.1% (-1.8 to -2.3)	
	Adjusted marginal logistic model*	Reference	0.24 (0.16-0.37)	
<i>30-day hospital readmission</i>	Absolute risk	5592/45,910 (12.2%)	756/6,838 (11.1%)	
	Absolute difference (95% CI)	Reference	-1.1% (-0.3 to -1.9)	
	Adjusted marginal logistic model*	Reference	0.98 (0.87-1.10)	0.69
<i>30-day ER visit</i>	Absolute risk	10,312 (22.5%)	1589/6,838 (23.2%)	
	Absolute difference (95% CI)	Reference	+0.7% (+0.2 to +1.8)	
	Adjusted marginal logistic model*	Reference	1.11 (1.01-1.22)	0.03
<i>Intervention for urethral stricture/ Bladder neck contracture</i>	Absolute risk	5174/45,910 (11.2%)	731/6,838 (10.7%)	
	Absolute difference (95% CI)	Reference	-0.6% (-0.2 to -1.4)	
	Adjusted marginal cox model*	Reference	0.99 (0.83-1.17)	0.86

Discussion

- Our results represent the comparative outcomes of a large group of men treated with PVP and TURP outside of the carefully selected patient populations and regimented setting of an RCT.
- There is a learning curve for new technology such as PVP, and the unstructured and minimally regulated introduction of new procedures may not be optimal.

Discussion

- There are a few potential reasons for our results
 - Our population level data includes a varied patient population, with different prostate sizes, and indications for surgical treatment of BPH
 - The extra operative time associated with PVP compared to TURP may have limited the extent of the adenoma resected
 - While most urologists become proficient in electrosurgical TURP during their training, time to surgical proficiency with PVP may be considerably longer outside of high-volume practices
 - Some studies have shown that PVP does not reduce prostate volume as much as TURP, particularly with large prostates.

Summary

- In a large population-based sample of over 50,000 men, PVP is associated with an approximately 50% higher hazard of retreatment compared to electrosurgical TURP at a median follow-up of 4.42 years.
- Advantages of the PVP include a lower risk of blood transfusion, and a shorter hospital stay.