

A cost-effectiveness analysis of pharmacotherapy versus prostatic urethral lift as initial therapy for patients with moderate BPH

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INTRODUCTION

The Prostatic Urethral Lift (PUL) is a newer, minimally-invasive procedure that involves the transurethral insertion of small, permanent implants designed to lift apart the obstructing prostatic lobes and thereby resolve BPH symptoms. It is performed under local anaesthesia and can be performed in a day surgery unit, which may not require inpatient admission for post-procedural monitoring. 5-year results of the LIFT trial, a multi-centre, randomized, blinded sham control study showed durable improvement of BPH symptoms, with few adverse events and preservation of erectile and ejaculatory function.

Several studies evaluating the cost-effectiveness of different treatment strategies for BPH have been published in the literature, but no such studies have been performed in the local Singaporean context. Although data related to the local healthcare costs of the treatment for BPH is sparse, given its prevalence and chronicity, healthcare expenditure of this condition can be assumed to be significant. The Singapore Ministry of Health (MOH) fee benchmark for unsubsidized admissions for BPH treatment stands at a median of SGD\$8,032, whilst the median for surgical treatment (TURP >30grams) was SGD\$20,157.

AIMS & OBJECTIVES

The objective of this study was to evaluate the cost-effectiveness of the use of the Urolift PUL system as an initial therapy for patients with moderate BPH symptoms, against pharmacotherapy with combination medical therapy.

METHODS

Strategies

We compared two treatment arms – the first with initial therapy with combination medical therapy (alpha-blocker + 5-ARI), and the second with upfront Urolift procedure as an initial treatment. In both arms, patients with persistent symptoms or failure of treatment could eventually progress to undergo a TURP.

Microsimulation Model

A micro-simulation model was developed using TreeAge Pro to compare the two treatment strategies and their impact on BPH progression, costs, and QALYs. The time horizon was 5 years and a cycle length of 3 months was used.

The hypothetical population consists of men aged 50-80 years old, with moderate BPH symptoms (IPSS score 8-19). Costs and effectiveness were discounted at 3% per annum, and a willingness-to-pay threshold of SGD\$50,000 (Singapore dollars) was used.

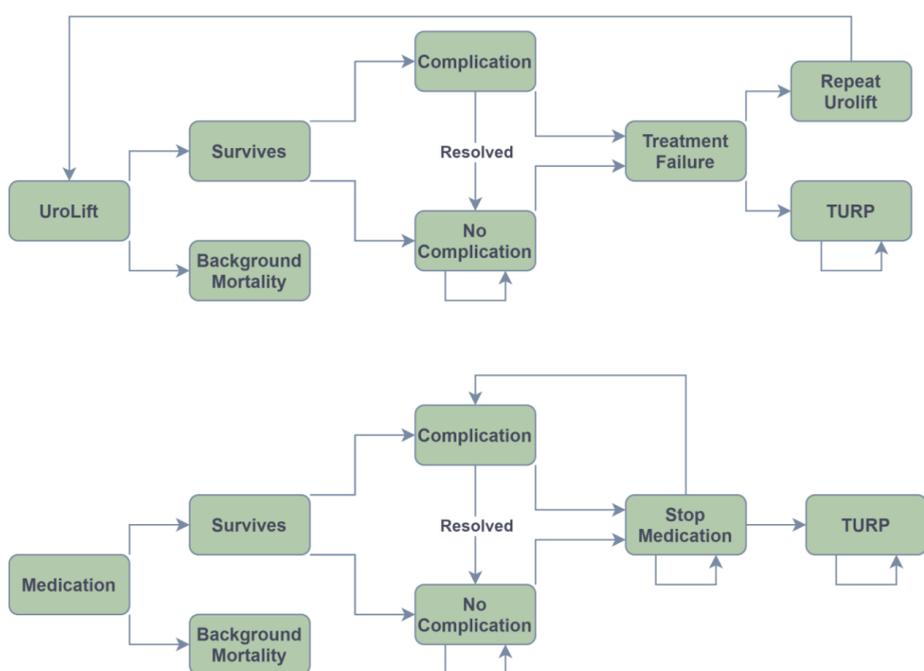


Fig 1: Conceptual diagram of the model structure

METHODS

Data Input

Clinical probabilities for the Urolift treatment arm were obtained from the LIFT trial, for which 5-year results have been published. Probabilities for the combination therapy treatment arm were obtained from the CombAT trial, as well as from prior cost-effectiveness analyses on BPH treatment in the literature. Background mortality rates were obtained from the Department of Statistics, Singapore.

Health utility values for mild, moderate, and severe BPH states, procedures, and adverse events were obtained from existing literature.

A healthcare payer's perspective was adopted for the model. In order to more accurately quantify the costs involved in treatment of BPH, only private/unsubsidized healthcare charges were utilized in the model. These were obtained from the Ministry of Health's Fee Benchmarks and Bill Amount Information publications and database, as well as from SGH.

RESULTS

The Markov microsimulation of 100,000 iterations showed that PUL as an initial treatment was more expensive, but also more costly, with an incremental cost-effectiveness ratio (ICER) of \$39,775/LY. Sensitivity analysis showed that the cost of PUL was the primary contributory variable to the ICER. Probabilistic analysis showed that increasing willingness-to-pay (WTP) thresholds favoured upfront PUL as an initial treatment strategy.

Strategy	Cost	Incr Cost	Eff	Incr Eff	Incr C/E	NMB	C/E
All							
Combination Medical	8928.932	0	3.709521	0	0	176547.1	2407.031
UroLift	17588.58	8659.646	3.927235	0.217714	39775.34	178773.2	4478.617
All referencing common baseline							
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Table 1: Cost-effectiveness rankings

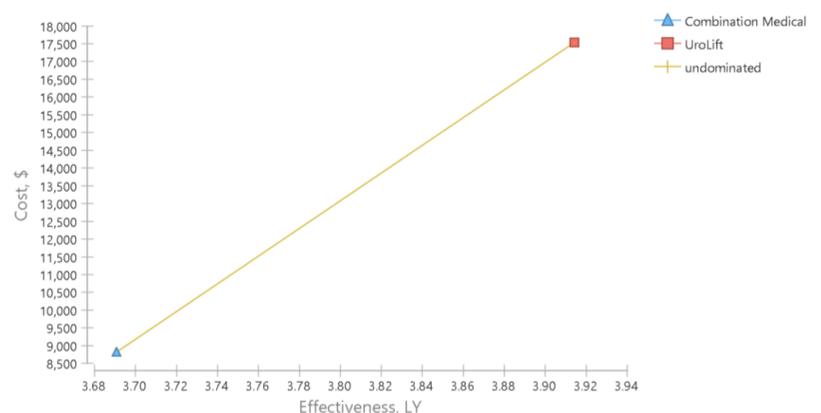


Fig 2: Cost-effectiveness analysis

CONCLUSION

The PUL can be considered as a treatment option for patients with moderate BPH based on a WTP threshold of SGD\$50,000/LY. However, the gain in QALY is small. Further exploration into the cost-effectiveness of other minimally invasive treatment options is warranted when the technologies are mature.

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