A Cost-Utility Analysis of Artificial Urinary Sphincter Versus Best Supportive Care in Severe Male Postprostatectomy Incontinence - Brazilian Public Health System Perspective

Tortele H., Rodrigues S., Contó M. - Boston Scientific, São Paulo, Brazil

Poster Code – **MT08**

Boston Scientific
Advancing science for life™

BACKGROUND AND OBJECTIVE

- Prostate cancer is the second most frequent tumor in Brazilian men. One of the main therapeutic options for the disease is radical prostatectomy of the prostate.[1,2]
- For patients undergoing radical prostatectomy surgery, urinary incontinence is the long-term most feared complication. The impact of incontinence on quality of life can be devastating.[3]
- Despite being considered the "gold standard" for the treatment of severe male postprostatectomy incontinence, the artificial urinary sphincter (AUS) is not incorporated and provided in the Brazilian public health system.[4]

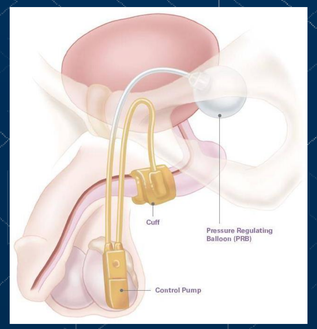

Figure 1. Artificial Urinary Sphincter (AUS) AMS 800 implanted in a male patient

The objective of the presented study was to evaluate the cost-utility of AUS in this perspective.

METHODS

- A decision tree model was developed to estimate incremental costs and quality-adjusted life years (QALYs) of AUS compared to best supportive care (BSC) in the Brazilian public health system perspective.
- Patients start the model with severe urinary incontinence resulting from radical prostatectomy. After entering the model, patients may undergo implantation of an artificial urinary sphincter or remain untreated for the health condition (Figure 2).
- For both choices, the patient can remain in the state of severe urinary incontinence (5 pads per day) or move to the state of complete continence (0 pads per day). Probability estimates, healthcare resources and utilities were obtained from published literature when available or by expert opinion. Uncertainty was analyzed using deterministic and probabilistic sensitivity analysis.
- Dollar average in 2022, according to the Brazilian central bank: US$1 = R$5.17

RESULTS

- AUS led to an expected gain of ~1.49 QALYs versus BSC at an incremental cost of US$ 13,864 presenting an incremental cost-effectiveness ratio (ICER) of 9,332 US$/QALY (Table 1).
- The results of one-way sensitivity analysis revealed that the key parameters with greatest impact on the ICER value are probabilities of the model's decision nodes and the QALY-measured outcome data of both urinary incontinence treatment options.

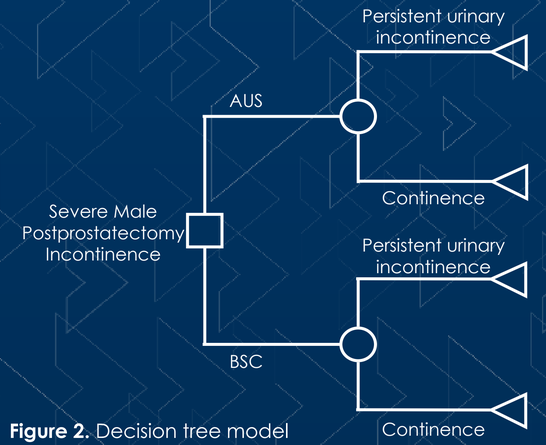

Figure 2. Decision tree model

Table 1. Base case analysis results

	AUS	BSC	Incremental
Total costs	US$ 14,787	US$ 923	US$ 13,864
QALY	~8,77	~7,29	~1,49
ICER (ΔUS$ /Δ QALY)			**US$ 9,332**

CONCLUSION

- AUS provided QALY gains when compared to BSC in patients with severe male postprostatectomy incontinence and is very close to the last cost-effectiveness threshold recently established by the Brazilian Public Health System, which is equivalent to 7,737 US$/QALY.

REFERENCES

1. Instituto Nacional do Câncer (INCA0, MS. Estimativa 2023: incidência de câncer no Brasil. 2023.
2. CONITEC. Diretrizes Diagnósticas e Terapêuticas do Adenocarcinoma de Próstata. 2016.
3. 1. Bauer RM, Bastian PJ, Gozzi C, et al. Postprostatectomy incontinence: all about diagnosis and management. Eur Urol. 2009;55(2):322-33
4. Sandhu JS, Breyer B, Comiter C, et al. Incontinence after Prostate Treatment: AUA/SUFU Guideline. J Urol [Internet]. 2019;202(2):369–78