Revisiting Artificial Urinary Sphincter implantation: efficacy, complications and future directions

25981





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Hypothesis / aims of study

To assess the incidence of re-intervention following AUS implantation for severe SUI post-radical prostatectomy. To identify risk factors associated with AUS-related re-interventions, including patient demographics and medical history. To evaluate the long-term efficacy of AUS implantation in achieving social continence.

Study design, materials and methods

The medical records from every patient who underwent AUS implantation between 2014 and 2023 were analyzed. Descriptive statistics were conducted on key variables, encompassing age at the time of surgery, primary comorbidities, habits, body mass index, incontinence grade before the procedure, as well as the subsequent follow-up spanning a maximum of 60-month period.

Complication, revision and explantation rates were evaluated.

Inferential statistics were employed with the dataset to achieve the study objectives, using SPSS - version 29.0.



Interpretation of results

High effectiveness of AUS in controlling SUI rivals with the high re-intervention rates, especially for AUS revision and explantation.

The average lifetime of the AUS was comparable to that reported in other studies (1) as well as the 5-year revision rates. Re-intervention rates were close to the maximum reported rates - that are commonly placed between 25-30%.

Various explanations for this finding:

- » Differences in patient populations
- » Variations in surgical techniques (perineal versus penoscrotal approach)
- » Variations in surgical volume or experience among surgeons could also contribute to differences in outcomes.

Further research is needed to explore these potential factors and elucidate their impact on re-intervention rates in AUS implantation.

Niranjan et al. also showed poorer outcomes for patients with diabetes and demonstrated no discernible increase in complication rates and revision surgery in previous irradiated patients. In contrast, Ganesh et al. showed similar results for naïve versus second-time implanted AUS, while our study revealed higher re-intervention rates in second and third-time implanted AUS. Since multiple interventions increase the risk of complications in any surgery, our findings are plausible.

Conclusions

Half of the implanted AUS required re-intervention sooner or later, indicating a notably high rate. Older patients and cardiovascular risk factors (such as diabetes, obesity and peripheral artery disease) increase the risk for AUS related reintervention. Previous urethral surgery and multiple AUS implantations are also significant risk factors. We found no difference regarding pelvic radiotherapy history. However, high percentage of desirable social continence was achieved, reaffirming AUS implantation as the 'gold standard' for moderate-to-severe SUI management. More studies are needed to refine AUS implantation criteria and reduce re-intervention rates

The findings of this study provide insight on the intricate landscape of AUS implantation and its outcomes.

References

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