

DIFFERENCE BETWEEN URETHRAL CIRCUMFERENCE AND ARTIFICIAL URINARY SPHINCTER CUFF SIZE DOES NOT AFFECT DECREASE IN POSTOPERATIVE INCONTINENCE

Hypothesis / aims of study

The size of artificial urinary sphincter (AUS) cuff is chosen intra-operatively according to measured urethral circumference. Our aim was to assess whether the difference between urethral circumference and AUS cuff size affected the decrease in postoperative incontinence, as measured by the number of pads, following AUS surgery.

Study design, materials and methods

Retrospective review of electronic medical records of male patients undergoing AUS implantations between January 2006 and May 2010 was conducted. Patients who had less than 3 months of follow-up after AUS activation were excluded. Age at surgery, preoperative incontinence, abdominal leak point pressure (ALPP) on videourodynamics, urethral circumference, AUS cuff size chosen and postoperative incontinence at 3 months after AUS activation were studied. Incontinence was recorded as number of pads used daily. The difference between AUS cuff size chosen and urethral circumference was calculated (ΔC). The outcome variable was the calculated decrease in preoperative to postoperative incontinence. To correct for a non-symmetric distribution, a log transformation of the postoperative decrease in incontinence was analyzed. Linear regression was used to model the effect of ΔC on the postoperative decrease in incontinence, while adjusting for preoperative incontinence and ALPP. All analyses were performed using R version 2.11.1. Significance was based on two-sided tests at the 0.05 significance level.

Results

90 patients were included. Mean age at surgery was 68.3 \pm 7.4 years. Mean preoperative incontinence was 8.9 \pm 5.3 pads. 69 patients had ALPP measurements recorded. Mean ALPP was 50.6 \pm 23.8cm H₂O. Mean urethral circumference was 39.1 \pm 3.2mm and most frequently implanted AUS cuff size was 40mm (mean 41.7mm). Mean ΔC was 2.6 \pm 1.4mm (0-7mm), with 22% having \geq 4mm difference. Mean postoperative incontinence was 0.9 \pm 0.8 pads, with mean postoperative decrease in incontinence calculated as 7.8 \pm 5.4 pads. The parameter estimates on the log postoperative decrease in incontinence for log ΔC , log preoperative incontinence and log ALPP were -0.017 ($p=0.482$), 0.109 ($p<0.001$) and -0.003 ($p=0.012$) respectively.

Interpretation of results

Preoperative incontinence was severe, with low mean ALPP. There was no significant correlation between ΔC and postoperative decrease in incontinence, despite more than 20% of patients having a difference of more than 4mm between the urethral circumference and AUS cuff size. The higher the preoperative incontinence and the lower the ALPP, the greater was the decrease in postoperative incontinence.

Concluding message

In this large cohort of patients, up to 7mm difference between the measured urethral circumference and AUS cuff size did not affect the postoperative decrease in incontinence.

<i>Specify source of funding or grant</i>	None
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Institutional Review Board, Vanderbilt University Medical Center
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No