

COST COMPARISON OF THE LAPAROSCOPIC BURCH COLPOSUSPENSION, LAPAROSCOPIC TWO-TEAM SLING AND THE TRANS-OBTURATOR TAPE PROCEDURE FOR THE TREATMENT OF STRESS URINARY INCONTINENCE

Hypothesis / aims of study

To compare health care costs of three surgical procedures for the treatment of primary stress urinary incontinence: the laparoscopic Burch colposuspension procedure, laparoscopic 2-team sling and the trans-obturator tape (TOT) procedure.

Study design, materials and methods

This retrospective observational study includes patients who underwent an isolated surgical intervention (no concomitant surgery) for primary stress incontinence between December 2003 and December 2009. All procedures were performed by specialists of urogynecology. Six patients underwent a laparoscopic Burch colposuspension procedure, six underwent a laparoscopic 2-team sling using polypropylene mesh, with simultaneous dissection in the vagina and abdomen, and six underwent a trans-obturator tape (TOT) procedure using the Gynecare TVT-O System™. All procedures were performed under general anaesthesia. A detailed review of the patients' medical records was conducted to establish the direct costs related to their surgery. Itemized calculations were made for: (a) disposable equipment costs; (b) surgeon, surgical assistant and anesthesiologist reimbursements; (c) nursing costs; (d) operating room (OR), recovery room, and hospital stay costs; and (e) length of stay in hospital. Costs were estimated based on 2009 dollars. The main outcome measure was the mean aggregated cost per patient treated.

Results

The mean age of patients undergoing a TOT was 55±12 years, a Burch 51±6 years, and a sling 67±8 years. The average duration of time in the operating room (from time patient entered the OR to time patient exited out of the OR) was half as long for the TOT with a mean of 58 min as compared to the Burch and the 2-team sling, with mean times of 1hr 57min and 1hr 59min respectively. Length of stay (LOS) in hospital (from beginning of OR to discharge from hospital) was more than five times shorter for a TOT (mean 7.6 hours) than for a Burch (mean 39.5 hours) and a 2-team sling (mean 46.7 hours). The mean cost per patient undergoing a TOT procedure was \$2,547 (95% CI: \$2,260 - \$2,833), a laparoscopic Burch colposuspension procedure was \$4,354 (95% CI: \$3,465 - \$5,244), and the mean cost per patient undergoing a laparoscopic 2-team sling was \$5393 (95% CI: \$4959 - \$5826). Significant differences were found across procedures ($p < 0.0001$) using a one-way ANOVA. A TOT was lower in cost than both a Burch ($p = 0.0008$) with a mean cost difference of \$1807.88, and sling ($p < 0.0001$) with a mean cost difference of \$2834.73.

Table 1: Breakdown of the costs per procedure.

	Laparoscopic Burch	Laparoscopic 2-team Sling	Trans-obturator Tape
Mean equipment cost/case	\$165.66	\$202.42	\$639.05
Mean OR cost/hr (includes RN salaries)	\$447.27 (2RNs*, 1RPN)**	\$488.47 (3RNs, 1RPN)	\$421.29 (2RNs)
Mean duration in OR (hours) (±SD)	1.97 ± 0.49	2.0 ± 0.46	0.98 ± 0.15
Mean total OR cost (includes OR costs, RN salaries and equipment)	\$1046.78	\$1179.36	\$1051.21
Surgeon reimbursement/case	\$470.88	\$826.26	\$381.60
Mean surgical assistant cost/case	\$211.20	\$222.72	\$117.12
Mean anesthesia cost/case	\$298.07	\$319.88	\$147.82
Mean LOS in hospital (hours) (±SD)	39.5 ± 14.2	46.7 ± 9.4	7.6 ± 7.3
Mean cost for recovery room and hospital stay costs	\$2327.52	\$2844.75	\$848.81
Mean total cost (equipment, fees & hospital stay) (95% CI)	\$4354.45 (95% CI: \$3,465 - \$5,244)	\$5392.97 (95% CI: \$4959 - \$5826)	\$2546.57 (95% CI: \$2,260 - \$2,833)

*registered nurse

**registered practical nurse

Interpretation of results

The TOT is a significantly less costly procedure than a laparoscopic Burch colposuspension or a laparoscopic two-team sling at our centre. The factors that have the largest impact on the mean aggregated cost include the length of stay in hospital, the equipment cost, and the personnel cost associated with the procedure and length of surgical time. The higher equipment cost of the TVT-O system appears to be offset by the shorter operating time and shorter length of stay in hospital associated with this treatment.

Concluding message

With the multitude of minimally invasive surgical methods available for the treatment of stress urinary incontinence with similar cure rates, the cost effectiveness of a surgical procedure may become more relevant in case selection. The preliminary results

show that a trans-obturator tape procedure is less costly than a laparoscopic Burch colposuspension or a laparoscopic two-team sling in the surgical treatment of stress urinary incontinence.

References

1. Ankardal M. Jarbrink K. Milsom I. Heiwall B. Lausten-Thomsen N. Ellstrom-Eng M. Comparison of health care costs for open Burch colposuspension, laparoscopic colposuspension and tension-free vaginal tape in the treatment of female urinary incontinence, *Neurourology & Urodynamics*. 26(6):761-6, 2007.
2. Kung RC. Lie K. Lee P. Drutz HP. The cost-effectiveness of laparoscopic versus abdominal Burch procedures in women with urinary stress incontinence, *Journal of the American Association of Gynecologic Laparoscopists*. 3(4):537-44, 1996 Aug.

<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>	No
<i>This study did not require ethics committee approval because</i>	It was a chart review of surgical case costs
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No