Assessing vaginal surgery skills: Setting a proficiency cutoff score for the fundamentals of vaginal surgery simulator

P. Schmidt1, P. Fairchild1, D. E. Fenner1, J. O. DeLancey1,
D. Rooney2

1University of Michigan - Department of Obstetrics and Gynecology, Ann Arbor, MI, 2University of Michigan - Department of Learning Health Sciences, Ann Arbor, MI

OBJECTIVES: The Fundamentals of Vaginal Surgery (FVS) simulator and tasks were developed to teach and assess the basic surgical skills utilized in vaginal surgery. The primary aim of this study was to determine a proficiency cutoff score for the combined task performance.

MATERIALS AND METHODS: This was a pilot study used to determine the optimum “Competent/Not-competent” cutoff score to assess performance of surgeons on the FVS simulator. Residents (n = 14), fellows (n = 3), and attending surgeons (n = 5) were recruited to participate to perform 6 unique tasks relevant to vaginal surgery — two knot tying, two suturing, and two pedicle ligation tasks. The cutoff times used for each task were determined a priori by 3 Female Pelvic Medicine and Reconstructive Surgery (FPMRS) attending surgeons who participated in this study. A scoring method similar to that used in the Fundamentals of Laparoscopic Surgery was applied and calculated as Task score = (cutoff time) − (completion time) − 10 (sum of errors). Task scores were then summed and higher summed task scores indicated a better performance. Proficiency scores were determined based on the average expert performance level. To test the assessment’s ability to discriminate participants’ ability by group, three groups were created — novice (PGY 1 and 2), intermediate (PGY 3-7) and expert (FPMRS attendings) surgeons. Because data were non-normal, Kruskal Wallis test was used to compare median scores between groups. A cutoff score that maximized discrimination between novices and experts was identified, while considering criteria that all experts pass and all novices fail.

RESULTS: Twenty-two participants were included — 6 novices, 11 intermediates, and 5 experts. Performance was significantly different between groups, with median scores (interquartile range [IQR]) for novice, intermediate, and expert groups of 261.5 (IQR = 211.5, 351.0), 480.0 (IQR = 389.0, 550.0), and 452.0 (IQR = 439.5, 603.5), respectively (P = 0.005; Figure 1). The cutoff score was set at 400. This score was consistent with approximately 1 standard deviation below the average expert performance. Based on this cutoff score, 0% (0/6) novices, 63.6% (7/11) intermediate, and 100% (5/5) experts passed.

CONCLUSION: In this pilot study, a preliminary cutoff score was established to discriminate between novice and expert surgeons. Future work should include multi-institutional trials to ensure generalizability of this cutoff score and value as an assessment tool.

The impact of obesity on native tissue repair outcomes: A secondary analysis of the OPTIMAL trial data

M. K. Hagedorn, W. J. Greer, T. Locklear

Virginia Tech Carilion School of Medicine, Roanoke, VA

OBJECTIVES: The Operations and Pelvic Muscle Training in the Management of Apical Support Loss (OPTIMAL) trial was a multisite, prospective randomized trial which compared sacrospinous ligament fixation (SSLF) and uterosacral ligament suspension (ULS) surgical outcomes, and also evaluated the impact of perioperative pelvic muscle training (PMT). Increasing body mass index (BMI) is associated with increased risk of pelvic organ prolapse and the prevalence of obesity is increasing worldwide. The purpose of this study is to better understand the impact of obesity on the results of native tissue vaginal apical suspension procedures.

MATERIALS AND METHODS: This study is a secondary analysis of data collected during the OPTIMAL trial, which is now a deidentified public dataset in the NIH Data and Specimen Hub database. Subgroup analysis of patients who received SSLF or ULS procedures and PMT or usual care was performed to determine if there were differences in surgical failure rates across a range of BMIs after two years. The sample size in this analysis was 297; not all of the original OPTIMAL data was available due to the deidentification process. Data were analyzed using ANOVA test, Tukey’s HSD post-hoc analysis, Fisher’s exact test, and Wald correct proportion risk difference test which is a method of identifying 95% confidence intervals.

RESULTS: There were 75, 120, 63, and 39 patients in the normal, overweight, class 1 obesity, and class 2 obesity or greater BMI subgroups, respectively. The groups were not significantly different based on surgical or PMT arms (Table 2). Interestingly, the surgical failure rate increased in the ULS group with increasing BMI (normal = 30.56%, overweight = 30.16%, class 1 obese = 40.63%, class 2 obese or greater = 45%). Additionally, the risk difference between ULS and SSLF groups increased with BMI (normal = 5.34%, overweight = 8.44%, class 1 obesity = 1.92%, class 2 obesity or greater = 23.95%).

CONCLUSION: The risk of surgical failure between ULS and SSLF, or PMT and usual care, is not significantly associated with increasing BMI. However, the increasing failure rate of ULS and difference in failure rates of ULS compared to SSLF with increasing BMI in our study may indicate an association if analyzed for a longer time period.
DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Meghan K. Hagedorn: Nothing to disclose; William J. Greer: Nothing to disclose; Tonja Locklear: Nothing to disclose.

20 Cost effectiveness of additional preoperative telephone visit: Analysis of a randomized trial on surgical preparedness


1University of Texas Austin, Austin, TX, 2University of Wisconsin, Madison, WI, 3Albany Medical Center, Albany, NY, 4University of Pennsylvania, Philadelphia, PA

OBJECTIVES: Surgical preparedness improves patient satisfaction and perioperative outcomes. We performed a RCT of a provider-initiated telephone visit in addition to usual preoperative counseling (TELE) versus usual preoperative counseling alone (usual care) and found that a supplemental preoperative telephone visit improved patient surgical preparedness. In this ancillary analysis our objective was to assess the cost-effectiveness of a preoperative telephone counseling with usual care counseling alone.

MATERIALS AND METHODS: We performed a planned prospective economic evaluation concurrent with a RCT of 132 women randomized to either TELE (n = 63) or usual care (n = 69) followed for 8 weeks after surgery for stress urinary incontinence and/or pelvic organ prolapse. A within-trial analysis from the health care sector (HCS) - formal medical costs borne by third-party payers and patients - and societal perspectives (SP) - all costs regardless of who incur - was performed as recommended by the Second Panel on Cost-Effectiveness in Health and Medicine. Costs are in 2019 U.S. dollars and include medical care, complications, patient and caregiver time, transportation, and lost productivity. A macro-costing approach was used; medical resource use was multiplied by price weights based on national Medicare reimbursement rates or published prices. Effectiveness measures include (1) quality-adjusted life-years (QALYs), calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.”

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

RESULTS: Baseline characteristics and peri-operative course were similar between groups (Table 1). QALYs, calculated from the EuroQol 5D (EQ-5D), and (2) surgical preparedness, measured by the Preoperative Patient Questionnaire; with a response of “strongly agree” to “Overall, I feel prepared for my upcoming surgery.” Our primary outcome was the incremental cost effectiveness ratio (ICER) of TELE vs. usual care, defined as the difference between groups in mean cost divided by the difference in mean QALYs in (i.e., QALY ICER). A secondary ICER was also calculated using surgical preparedness as the measure of effectiveness (i.e., preparedness ICER). Costs and QALYs were not discounted because of the 8-week analysis time horizon.

CONCLUSION: A provider-initiated preoperative telephone visit significantly improves patient surgical preparedness and is cost-effective from the SP.