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Validation of the Surgical Pain Scales in Women undergoing Pelvic Reconstructive Surgery

Objective: The Surgical Pain Scales (SPS) consist of 4 individual items that measure pain at rest, during normal activities, during work or exercise and a rating of the intensity of one's worse pain. (1) The reliability, validity and responsiveness of the SPS have been previously demonstrated in men undergoing hernia repair (1). The objective of this study is to evaluate the psychometric properties of a modified version of the SPS in women undergoing vaginal surgery for pelvic organ prolapse (POP) and stress urinary incontinence (SUI).

Methods: . We modified the SPS by converting the original response scales from visual analog scales (VAS 150mm) to a Numerical Rating Scale (NRS) (0 to 10). The NRS has been shown to have lower error rates and a higher face, convergent, divergent and criterion validity than VAS, particularly in elderly patients.(2) The study sample included 169 consecutive women enrolled in the OPTIMAL trial, a randomized trial comparing sacrospinous ligament fixation to uterosacral vault suspension with and without perioperative pelvic floor muscle training in women with Stage 2-4 POP and SUI Participants completed the SPS and the SF-36 at baseline and 2-weeks and 6-months after surgery. At 2 weeks and 6 months, subjects were also asked to rate their average pain during normal activities compared to before surgery on a 5 point scale (from "much better" to "much worse"). Construct validity and responsiveness were examined in statistical analyses of cross-sectional and longitudinal data using Pearson's correlation coefficient and ANOVA.

Results: 155 of 169 subjects (92%) completed both the SPS and SF-36 at baseline and 2-weeks and are the subject of this analysis. Pain at rest, pain during normal activities and pain during work/exercise significantly worsened 2 weeks after surgery ($p<.05$ for each) and all 4 measures of pain demonstrated significant improvement from baseline at 6 months ($p<.0001$ for all). Construct validity was demonstrated by a correlation of .51 to .74 between the SPS scales and the SF-36 Bodily Pain Scale ($p<.0001$ for all time points). Patients who reported a worsening of pain during normal activities and those who had a worsening of the SF-36 Bodily Pain Scale from baseline to two weeks also demonstrated significant worsening on the SPS (effect size .84 and .99 respectively, $p < .003$ for both). Similarly, those who demonstrated an improvement in pain from 2 weeks to 6 months on the SF-36 Bodily Pain Scale demonstrated a significant improvement in the SPS (effect size 0.96, $p =.0003$)

Conclusions: The modified SPS are valid and responsive scales that can be used to evaluate various aspects of pain in women after pelvic reconstructive surgery.

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2. Gagliese L, Weizblit N, Ellis W, Chan VW. The measurement of postoperative pain: a comparison of intensity scales in younger and older surgical patients. Pain 2005;117(3):412-20.