23240 - A VIDEO ASSISTED ASSESSMENT SYSTEM FOR RESIDENTS' SKILL IN EPIDURAL ANESTHESIA

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INTRODUCTION: There is a growing demand for objective assessment of manual skills and competencies in all aspects of invasive procedures. At the present time, there is no valid evaluation tool for assessment of technical proficiency in regional anesthesia procedures. The aim of this study was to validate an objective tool for assessing residents' competency in performing epidural anesthesia by using a global assessment scale and a 3-scale 27-stage checklist. We wish to demonstrate that this tool can differentiate operators with different levels of training.

METHOD: The study received Research Ethics Board approval. Second year anesthesia residents were recruited after their previous experience with epidural anesthesia was assessed by questionnaire. The residents were videotaped several times during epidural catheter insertion for labour analgesia over a 6-month period. Videotaping was done in a blinded manner masking the identity and level of training of the resident. Three blinded independent examiners evaluated each session, using a specifically devised assessment comprised of a global rating scale and a 27 stage 3-scale checklist to judge the skill level, and grade the videotaped sessions.

RESULTS: 21 sessions from 6 residents were videotaped over 6 months. The first session was taped after 12 epidural procedures were performed independently and the last ones after up to 220 insertions. Inter-rater reliability for the different checklist and global rating form items shows moderate to high degree of agreement for most stages. Total scores demonstrate almost perfect agreement (Kappa / ICC +/- SE= 0.90 +/- 0.03 and 0.83 +/- 0.13 respectively, $p < 0.0001$) between examiners. To test whether higher total scores are associated with greater experience, a series of repeated measures ANCOVAs were performed. In both the global rating form and the checklist, a significant relationship between total scores and number of epidurals insertions performed was found to exist (checklist: $F=86.55$, $df=1,53$, $p < 0.0001$; global rating: $F=36.49$, $df=1,54$, $p < 0.0001$).

DISCUSSION: The results of our study show that scores on a system comprised of a global rating form and a task specific checklist had a very good correlation with experience in performing epidural analgesia and a significant relationship between total scores and the number of epidurals insertions performed was found to exist. The inter-rater reliability of these assessment tools is very strong, suggesting we will be able to obtain meaningful data from these scales without inter-examiner differences.

Evaluating technical skills by an objective tool under direct observation, as opposed to laboratory setting may create a "gold standard" of assessment. Furthermore, residency programs could use these evaluations for identifying deficiencies in teaching programs and trainees that require extra instruction.