450527 - PRACTICE IS NOT ENOUGH- REPEATED BREACHES IN EPIDURAL ANESTHESIA ASEPTIC TECHNIQUE BY ANESTHESIA RESIDENTS DESPITE IMPROVED SKILL AS REVIEWED BY VIDEOTAPING

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Introduction: Invasive procedures carry the risk for complications such as erroneous placement arising from inadequate manual skills and infection secondary to breaches in aseptic technique. With neuraxial anesthesia, infectious complications may be devastating. Although it is assumed that improvement in sterile technique parallels improved dexterity, this assertion remains unproven. In this trial we determined whether increased proficiency in manual skills for epidural anesthesia is associated with improved aseptic technique.

Methods: The study received Research Ethics Board approval. Novice second year anesthesia residents were repeatedly videotaped performing epidural anesthesia over 6-month periods. Three independent examiners blinded to the identity and level of training of the residents evaluated the procedures for manual skills and aseptic technique. Each procedure was graded using a scaled manual skills checklist, a global rating scale and a scaled checklist for aseptic technique.

Results: 35 sessions were videotaped over 1 year. Inter-rater reliability was nearly perfect for all three measures (ICC 0.91, $p < 0.001$). A significant relationship was found between the number of epidural procedures performed and the manual skills checklist scores ($F = 80.62$, $df = 1, 23$, $p < 0.0001$). A strong positive association was found between increased experience and manual skills reflected by the correlation between manual skills checklist scores and the number of epidurals performed ($R = 0.84$, $p < 0.0001$) (Figure 1). In contrast, no relationship was found between the number of epidural procedures performed and the aseptic technique checklist scores ($F = 1.67$, $df = 1, 23$, $p = 0.21$) (Figure 2).

Discussion: Manual skills for invasive procedures improved with increasing experience but aseptic technique did not, despite formal teaching in this area. These findings reflect major gaps in the understanding of the principles of aseptic technique, most likely due to lack of structured training.¹ Increasing virulence and resistance of contaminating organisms is a major concern and emphasis on meticulous aseptic technique is paramount to patient safety. Educational initiatives are needed to correct these teaching gaps.

References: 1. Leeper et al. Curr Surg 2002. This study was supported grants from the The Physicians' Services Incorporated Foundation and American Society of Regional Anesthesia

Figure 1: Manual Skill Checklist Total Score vs. Number of Epidurals Performed

Figure 2: Sterility Checklist Total Score vs. Number of Epidurals Performed