Training, Competency and Certification in Ultrasound-Guided Regional Anesthesia

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Proper training in ultrasound guided regional anesthesia (UGRA) must precede patient care. Recently the ASRA/ESRA Joint Committee was established to recommend the scope of practice, the teaching curriculum and the options for implementing UGRA into clinical practice.\(^1\) The skills required for UGRA are more complex than for the traditional nerve stimulation or landmark guided techniques. Demonstration of proficiency is required for the following skill sets—1) understanding device operations (cognitive skill); 2) image optimization (manual skill); 3) image interpretation (cognitive skill); and 4) visualization of needle insertion and injection of the local anesthetic solution (manual & cognitive skills).

The ASRA/ESRA Joint Committee recommends learning from accredited CME workshops with didactic & hands on training (≥ 8 hr), web-based training, lectures, textbooks, and simulator-based learning. Self learning to practice scanning techniques and needle insertion using simulators and phantoms is recommended. Without proper training, a novice practitioner likely advances the needle without visual tracking the needle tip, much like conventional nerve block approaches.\(^2\) Recognition of ultrasound artifacts, pitfalls and limitations is also important.\(^3,4\)

Conventional written examinations can assess knowledge and judgement-based skills but not technical skills. Technical proficiency in regional anesthesia is often determined subjectively through in-training evaluations. Objective assessment tools can improve these evaluations by providing criteria for measurement.\(^5\) One such useful tool is the Objective Structured Assessment of Technical Skill (OSATS) for surgical tasks using bench model simulations or live subjects.\(^6,7\) This tool has been shown to have high interrater reliability and construct validity. Task specific checklists and global rating scales are the two methods of scoring for OSATS and similar scoring systems have also been applied successfully to assess interscalene block\(^8\) and epidural\(^9\) placement skills.

Second, another useful assessment tool is the Cusum (cumulative summation) methodology.\(^10\) It has been used to define learning curves for technical skills. Cusum takes into account the subject’s performance over time based on pre-determined criteria for success or failure. The disadvantages of Cusum are: 1) it examines outcome and not the process of performing procedural skills; 2) it relies on self-reporting which may be inaccurate. Third, the Imperial College Surgical Assessment Device (ICSAD) is a motion analysis device that objectively assesses technical ability.\(^11\) This device tracks the distance the hands moved, the number of movement, the total time and average hand velocity. We have applied and validated ICSAD for the assessment of hand motion in ultrasound-guided supraclavicular block.

References


