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How do you teach someone to fish?

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Owing to recent advancements in ultrasound technology and a deeper understanding of sonoanatomy, the utilization of ultrasound-guided regional blocks, including peripheral nerve and fascial plane blocks, in clinical practice is widespread. Since Karmakar et al. [1] introduced a costoclavicular approach to block the infraclavicular brachial plexus in 2015, the costoclavicular block (CCB) has been used for regional anesthesia of the upper limb and shoulder for surgical procedures or pain management. Despite being a relatively novel nerve blockade technique, the CCB has been extensively adopted for adult and pediatric patients. This rapid adoption can be attributed to the widespread distribution of ultrasound technology and a greater understanding of sonoanatomy.

In their study of patients undergoing elective arthroscopic shoulder surgery, Luo et al. [2] conducted an analysis comparing the interscalene block (ISB) and CCB. Various parameters were assessed, including the proportion of patients with a complete motor blockade of the suprascapular nerve at 20 and 30 min postoperatively, complete sensorimotor function of the axillary and supraclavicular nerves, block-related complications (particularly the incidence of hemidiaphragmatic paralysis), the block performance time, pain scores at 12 and 24 h postoperatively, and patient satisfaction. This randomized, controlled prospective study with a relatively large sample size reported that the motor blockade efficacy of the CCB and ISB were comparable, while complications such as hemidiaphragmatic paralysis were notably less frequent in the CCB group. This observation aligns with the results of a meta-analysis comparing the CCB with other brachial plexus blocks [3]. A recent report on a block that serves as an alternative to another plan block for analgesia during upper limb and shoulder surgeries is also available [4]. The sub-splenius plane (SSP) block, which involves the administration of local anesthetics into the space between the splenius cervicis and the longissimus cervicis/capitis muscles, has been proposed as an alternative to the conventional high thoracic erector spinae plane (ESP) block [1,5]. Neuraxial spread is more restricted with the SSP block compared with the cervical ESP block, mitigating complications and providing effective analgesia to the shoulder, thoracic, scapular, or proximal humeral regions. In this climate, clinicians must rapidly gain proficiency with these contemporary nerve blockade techniques; however, this is challenging even for experienced clinicians. Hence, demand for competency-based education (CBE) that utilizes tools such as gels and virtual reality (VR) is increasing.

CBE is an educational framework that centers on learners' capabilities and accomplishments. In contrast to traditional time-based teaching methods, the pace of CBE is based on individuals' learning and comprehension. With this approach, the extent to which learners have acquired specific skills, knowledge, or competencies is evaluated and progress is based on their achievements. Traditional "apprenticeship models" or "see one, do one" learning methods may fail to provide consistent learning experiences for learners and could compromise patient safety. Conversely, CBE offers an effective approach for learners to acquire and demonstrate the skills required in real-world clinical settings, as it accom-

modates each learner's pace and style of learning, allowing them to plan their learning autonomously, thereby addressing the shortcomings of traditional methods and enhancing patient safety.

Currently, various simulation modalities, including phantom gels, part-task trainers, VR, and full-scale mannequins are employed to educate residents on ultrasound-guided nerve blocks. Simulation-based educational approaches have several advantages. First, they allow residents to learn at their own pace, resulting in a shorter learning curve and increased success rate in nerve block procedure performance. Second, this type of training reduces stress for operators as it eliminates the need for direct patient practice and associated concerns for patient safety [6]. These diverse simulation models encompass a range of materials including gelatin-, meat-, and gel-based phantoms; commercially available trainers; hybrid simulators; VR platforms; and cadavers. One previous study found that a group receiving hands-on training with an anatomy-based gel phantom demonstrated superior proficiency in identifying anatomical landmarks compared to a group receiving video training [7]. Furthermore, VR simulators have emerged as an alternative to traditional educational methods, particularly given the recently established guidelines for minimizing physical contact. A study by Kim et al. [8] found that using a VR simulator in spinal procedure education resulted in higher global rating scores, reduced procedural times, reduced use of C-arms, and higher overall satisfaction scores, supporting the use of VR simulators as teaching aids compared to self-learning groups using video and book.

Various nations or distinct medical institutions have instituted fundamental educational competency programs (curriculum) tailored to anesthesiology residents. However, conditions conducive to comprehensive education such as adequate allocated time and suitable facilities are often insufficient, hindering the efficacy of instructional activities. This has been exacerbated by the recent development of diverse ultrasound-guided nerve block procedures, resulting in inadequate training opportunities.

The Korean Society of Anesthesiologists (KSA) conducted a survey to assess educators' and trainees' preexisting knowledge and understanding of CBE, with the aim of introducing CBE into residency training programs [9]. Several crucial concerns were identified and confirmed through this survey. First, while the training faculty members, chief training faculty members, and residents acknowledged the importance of CBE, the extent to which they perceived it as necessary and crucial for education varied. Moreover, prioritization of the importance of core competencies and related learning objectives outlined by the KSA's Training and Education Committee also varied. Although the residents acknowledged the significance of CBE in educational con-

texts, their practical understanding was insufficient. Therefore, to implement CBE effectively within residency programs, comprehensive measures are required. These measures include educational interventions to enhance educators' and trainees' understanding of CBE along with the formulation of core competencies and associated learning objectives. This concerted approach is vital for the successful integration of CBE principles.

In conclusion, to achieve effective education on ultrasound-guided nerve block procedures, shifting from traditional teaching methods to CBE is essential. Simulation-based education, founded on a competency-based learning model, into specialized curricula should be actively integrated, with the aim of enabling learners to acquire the knowledge and skills necessary for the immediate application of nerve block techniques in the clinical setting [10]. To facilitate this, enhancing the study of anatomy and sonoanatomy is necessary, alongside providing repetitive training through simulation-based learning utilizing tools such as phantoms or VR.

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Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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