General Session 3

Learning and Teaching Regional Anesthesia:  
Real-Time vs Web-based Learning

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Education experts have suggested that many physicians know what to teach, but few know how to teach. Since most physicians have received little formal instruction in education theory or methodology during their own training, this assessment may be accurate. Traditionally, residents have been taught regional anesthesia in an apprenticeship model; without a formal regional anesthesia rotation or curriculum. Limitations to this style of teaching include: inconsistent learning experiences and limited case numbers. Standardized educational performance objectives [Accreditation Council for Graduate Medical Education (ACGME) competencies] and minimum block numbers for resident trainees have also been implemented and widely accepted during the past decade. However, there are residents that fail to meet these requirements or develop proficiency in peripheral nerve blockade. Formal regional anesthesia rotations consisting of a defined curriculum have recently been introduced into several anesthesia residency programs. These programs are now trying to identify the most beneficial teaching tools and many have started to utilize simulation and web-based education.

While web-based learning possesses several unique benefits and is increasingly used in university and graduate medical education, it has not been developed or studied in regional anesthesia. Benefits of web-based education include: the ability to standardize the quality and content of learning material, build appropriate learning progressions, incorporate multi-media technology, and individualize delivery of course materials in terms of time, pace, repetition,
and location. Experts in adult learning have argued that traditional, didactic-style teaching promotes passive learning; and higher order cognitive skills are only developed through interactive learning, such as simulation or group discussion. Web-based education has been considered a form of interactive learning and therefore many have hypothesized that web-based education should be superior to the more traditional didactic approaches in terms of knowledge acquisition. Although web-based modules are considered effective teaching tools, the existing literature does not consistently support that hypothesis. Many suggest that researchers should concentrate on determining the optimal module design, usage pattern, assessment tools and integration of web-based education, rather than focusing on whether it is superior to the more traditional methods of education. Currently the main limitations to evaluating web-based education compared to more traditional approaches are 1) ensuring that each group of learners is exposed to the same content, and 2) developing an assessment tool that measures the appropriate learning outcomes.

A study of Mayo Graduate School of Medicine Anesthesiology residents designed to evaluate whether module design (case-based vs non-case-based) would influence knowledge acquisition failed to demonstrate a difference. Residents scored higher on the post-module knowledge assessment but the improvement was independent of the module design and independent of the resident’s individual learning style. This result was unexpected given the bias among anesthesia residents toward active/visual/sensing/sequential learning dimensions. It may be that anesthesia residents are high-functioning learners who, despite displaying certain learner preferences, are capable of knowledge acquisition regardless of the educational format (case-based vs non-case-based). When surveyed, residents did prefer the case-based module and responded that they thought web-based learning should be utilized, although they felt it should not replace traditional didactic education.
There are definitely questions that need to be answered within the field of anesthesia education and more specifically regional anesthesia education. In addition to evaluating outcomes specific to a particular type of education (web-based, simulation, etc.) - such as cost, structuring, and assessments - future studies should be designed to assess the effect on patient care.
REFERENCES

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