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Editorial

Perioperative Ultrasound: The challenge of applying an old technology in new clinical settings☆

Ultrasonido Perioperatorio: El reto de aplicar una vieja tecnología en nuevos escenarios clínicos

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In anaesthesia, anticipating problems and responding quickly and effectively to peri-operative risks to the patient is crucial. As a result of recent technological advances over the last few decades, ultrasound has emerged as a tool to guide a huge number of procedures in the practice of various specialties. In particular in anaesthesia, it has become critical in establishing vascular accesses, providing regional anaesthesia,[1–9] performing interventional procedures for acute and chronic pain relief,[10] and for gathering relevant qualitative information for the diagnosis or treatment of low output syndromes,[11–15] hypovolemia, acute pulmonary events,[16] and for the assessment of gastric content as a risk for aspiration,[17] and assessment of the airway, among other things.[18–20]

The world literature supports the current use of ultrasound as an extension of the physical examination and as a teaching tool in undergraduate[21] and graduate education.[22] It is one more among the technologies that are part of the "Point of Care" concept, brought to the patient's bed to help with decision-making.[23–26] The application of any new technology or diagnostic tool as part of medical practice must be framed within ethics and good clinical practices, something to which we cannot be indifferent.

Along the same lines, the application of an old technology in a new clinical setting by practitioners other than those traditionally linked to it, may be associated with vulnerabilities. This is precisely the fair source of concern of our Radiology colleagues, a situation which we fully understand from the point of view of education and development of skills.[27,28]

The widespread use of ultrasound during the perioperative period constitutes a challenge for future anaesthesia training in formal and non-formal settings.[29–35] Consequently, the introduction of ultrasound into anaesthesia training programmes, focusing on specific objectives by areas, becomes relevant. Like in non-formal education or in continuing medical education, the analysis of Miller's pyramid is warranted: knowing, knowing how, showing how, and finally mastering the skill. However, arriving at the top of the pyramid is not easy.

Consequently, which should be the scope of continuing medical education courses and training outside the academic

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setting?[32,36–40] Do they confer the knowledge, and the know-how? Do they result in the achievement of competencies? Are just one, two, or three workshops enough? What kind of exposure is needed? What is the time required to develop the skill for using ultrasound correctly in a given clinical context? Does competency in one skill make the practitioner competent in the others? These and other questions emerge and must be answered responsibly.

It is up to scientific societies to answer these questions and create or provide guidelines for determining the right settings for skill development, working along a sound and structured path of continuing education. This is a great challenge to which we must and should rise as professionals and educators, driven by the benefits and the academic and scientific advancement in the world, in order to make sure that new generations of colleagues and those already in medical practice may profit from this resource that has revolutionised clinical practice in the majority of medical settings, for the benefit of our patients for whom we ultimately exist.

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