Use of ultrasound in pediatric intensive care units in fields and training status of clinicians.

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Abstract

For decades, ultrasonography has been widely utilised in medicine, although mostly by specialised users like cardiologists, obstetricians, and radiologists. This imaging modality has moved to the bedside in recent years, with doctors performing and interpreting focused point of care ultrasonography to aid in the urgent assessment and management of their patients. Advances in ultrasound-related technology, as well as new research and protocols confirming its utility in clinical practise, have aided the rise of point-of-care ultrasonography. However, significant obstacles remain before this modality can be implemented across a wide range of fields, particularly in terms of training, competency, and usage standards. The history, current condition, problems, and future direction of point-of-care ultrasonography are discussed in this paper.

Keywords: Ultrasound, Intensive care, Point-of-care ultrasound.

Introduction

The acquisition and interpretation of pictures by the treating clinician, the end-user, at the bedside is referred to as Point-of-Care Ultrasound (POCUS). It enables real-time, data-driven therapeutic decisions without the need for a specialist to gather or interpret the images. This ultrasonography framework is ideal for paediatric critical care because it allows for safe treatments and quick, simple serial reassessments targeted at enhancing diagnosis and monitoring. Significant progress has been made in paediatric critical care POCUS over the last decade. It is, however, not without debate, as with most great breakthroughs. POCUS has grown quickly, and many questions, especially those around competency and training, remain unaddressed. Incorrect interpretations made by poorly trained users can cause considerable dangers to patients, disrupting workflow and increasing cost burden. When POCUS is utilised as a supplement to existing clinical aids or as an extension of the physical exam, rather than as a standalone tool to overrule or replace other diagnostic modalities, the benefits are enormous, and it can provide crucial information and direction in caring for our patients [1,2].

Ultrasonography has been a valuable tool for non-invasive imaging of numerous anatomical structures since its inception in clinical practise in the mid-20th century. It has a significant benefit over conventional imaging techniques in that it does not use ionising radiation. It can also be done rapidly and at the bedside (without the need for patients to be transferred), and it allows for serial imaging, which allows physicians to estimate the success of interventions recommended to patients without having to rely on other professionals. Ultrasonography has been an essential method in various medical and surgical specialties, such as cardiology and gynaecology and obstetrics, for decades, despite being primarily used by radiologists. Over the last few decades, point-of-care ultrasound has gradually been integrated into inpatient paediatric treatment, having the greatest impact in paediatric emergency care. PoCUS has been consolidated as a crucial method in paediatric emergency departments as a result of its inclusion in the educational curriculum of emergency care paediatricians and the position of the American Academy of Pediatrics in favour of its usage in this setting. Its application in this setting has been compared to its application in inpatient care and other medical specialties. Finally, POCUS is an important technique that is commonly employed in most PICUs [3]. The most important clinical benefits of POCUS use by paediatric critical care clinicians have been demonstrated in numerous studies. POCUS can be defined as the new stethoscope of critical care physicians, based on the growing and valuable literature about its use by paediatric intensive care experts. You can undertake rapid, noninvasive, and repeatable assessments with clinical changes of patients without the requirement for an external consultant if you have POCUS and an experienced team. The research backs up the widespread usage of POCUS in PICUs and its major clinical benefits [4,5].

Conclusion

In conclusion, ultrasound has made significant progress in clinical practise for anesthesiologists and intensivists who work with newborns and children. In the intra- and perioperative

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settings, ongoing interest in its application has resulted in significant improvements in procedural performance, as well as the assessment and management of pulmonary and hemodynamic problems, among other things. However, much remains unknown about the technology's performance in its growing role in the paediatric setting. Extrapolating findings from adult modalities to their application in youngsters should be avoided. These questions will be answered if paediatric anesthesiologists and intensivists explore examination of point-of-care ultrasound with the same excitement that surrounds its use at the bedside.

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