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Imaging the Critically Ill

Imaging is integral to managing critically ill patients in the ICU as it is a key source of diagnostic information to guide clinical decision-making. In recent years, there has been significant evolution in the field of critical care imaging with an increased focus on improving imaging modalities and methodologies and increasing access to imaging findings. Whether it is critical care ultrasound (including echocardiography), computed tomography, or MRI techniques, diagnostic imaging techniques are essential to guide intensive care and patient management. Moreover, the ability to accurately interpret critical care images has become even more essential, thus highlighting the need for better training and education and providing critical care clinicians with the necessary knowledge and skills to make accurate decisions based on imaging findings.

In this issue, our contributors discuss the different imaging procedures used in the ICU and their practical applications and use within the critical care setting, the role of imaging in diagnosing and treating different types of diseases, the importance of identifying the right patients and the right diagnostic tools, strategies that can optimise the use of imaging and the importance of effective interpretation of images for improved patient outcomes.

Etrusca Brogi, Giuseppe Bozzetti, Matteo Romani and co-authors talk about the importance of critical care ultrasound examination and how it should be considered in specific situations in the ICU. They also highlight the need to master all the possible applications and future innovations of ultrasonography in the critical care setting.

Davide Chiumello, Emilia Tomarchio, and Silvia Coppola discuss computed tomography and how it is an invaluable technique for evaluating lung morphology and response to ventilatory strategy and understanding the pathophysiology of Acute Respiratory Distress Syndrome patients.

Laura Dragoi and Ghislaine Douffé explore the current applications and limitations of critical care echocardiography in the critical care context and its use in guiding the care of critically ill patients. Christopher King, Jonathan Wilkinson, Ashley Miller and Marcus Peck discuss the role of point of care ultrasound in the diagnosis and management of pathology in the critical care setting and as a specific tool to aid in invasive procedures.

Raymundo Flores-Ramírez, Carlos Mendiola-Villalobos, Orlando Pérez-Nieto and co-authors discuss ultrasonographic assessment of the neck vessels in critically ill patients and how it can guide fluid administration. Alberto Gómez-González, Miguel Martínez-Camacho, Robert Jones-Baro and co-authors provide an overview of the main ultrasonographic tools that allow physiotherapists to improve their evaluation of the critical patient. Casey Bryant highlights the ever-expanding footprint of critical care ultrasound in ICUs, pointing out the need to continue demonstrating its impact on patient-oriented outcome measures and defining educational curricula and competency requirements.

Imaging is an essential tool for assessing and managing critically ill patients. The use of advanced imaging procedures plays an increasingly important role in the diagnostic and treatment pathway of patients with critical illness. While there are many tools now available to clinicians, using them at the right time and maximising the diagnostic and therapeutic utility of imaging procedures is essential. At the same time, minimising costs is important within the critical care setting.

As always, if you would like to get in touch, please email JLVincent@icu-management.org.

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