ICU
MANAGEMENT & PRACTICE

Update: Guidelines on Adult Critical Care Ultrasonography

Critical care ultrasonography (CCUS) is a point-of-care tool used by clinicians to aid diagnosis, manage care, and guide procedures for critically ill patients. It has become widely adopted in critical care, but its impact on patient outcomes remains uncertain.

This executive summary updates previous CCUS guidelines by comparing clinical outcomes with and without CCUS in cases of cardiac arrest, septic shock, acute respiratory failure, volume management, and cardiogenic shock. Recommendations, based on a systematic review of evidence by an expert panel, assume appropriate training and competency. Using the GRADE approach, recommendations are classified as strong ("we recommend") or conditional ("we suggest").

Summary of CCUS Recommendations

CCUS in Patients with Septic Shock

Recommendation: Conditional recommendation for CCUS use (low-quality evidence).

Key Points:

- CCUS may reduce mortality but has little impact on renal replacement therapy or ICU stay.
- It may be particularly beneficial for volume management in select patients.
- Unclear role in guiding vasopressors and inotropes.

CCUS in Patients with Acute Dyspnea or Respiratory Failure

Recommendation: Conditional recommendation for CCUS use (low-quality evidence).

Key Points:

- CCUS can aid diagnosis and guide management, especially in settings with limited radiographic access.
- It may shorten mechanical ventilation duration and improve time to correct treatment.
- No standardised CCUS protocol for these conditions exists yet.

CCUS for Targeted Volume Management

Recommendation: Conditional recommendation for CCUS use (low-quality evidence).

Key Points:

- CCUS may help personalise fluid management and reduce mortality.
- Fluid balance alone is insufficient for decision-making; CCUS is one component of a larger strategy.
- Skill level of the operator affects accuracy and effectiveness.

CCUS in Patients with Cardiogenic Shock

Recommendation: Conditional recommendation for CCUS use (very low-quality evidence).

Key Points:

- CCUS provides comparable information to pulmonary artery catheters (PACs) with greater safety and portability.
- No strong evidence of benefit, but it is widely used in practice.
- Future studies comparing CCUS and PACs could clarify its role.

This guideline evaluates the impact of CCUS compared to usual care on patient outcomes. Key research priorities include randomised trials on protocolised CCUS for volume management in septic shock, trials comparing CCUS and PAC for cardiogenic shock management with trained practitioners and integrating artificial intelligence to enhance CCUS image acquisition, accuracy, and reproducibility.

A structured research agenda is essential for optimising CCUS use in clinical practice.

Source: Critical Care Medicine

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