

New guidelines for hepatic failure in the intensive care unit

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For critical care specialists, hepatic failure poses complex challenges unlike those of other critical illnesses. A new set of evidence-based recommendations for management of liver failure is presented in the March issue of *Critical Care Medicine*, the official journal of the Society of Critical Care Medicine (SCCM).

The [new guidelines](#) assemble recommendations for critical care specialists managing the wide range of conditions and complications posed by [liver failure](#)—a serious organ derangement that carries a high risk of death, and for which [liver transplantation](#) may be the only definitive treatment. Rahul Nanchal, MD, MS, FCCM, of Medical College of Wisconsin, Milwaukee, and Ram Subramanian, MD, FCCM, of Emory University Hospital were Co-Chairs of the Guidelines Committee.

Recommendations on Liver Failure in Five Key Areas

As for all SCCM guidelines, the multidisciplinary, international expert Committee followed a rigorous approach to reviewing the best available evidence and developing consensus guidelines to answer a defined set of clinical questions. Two forms of hepatic failure are addressed. Acute [liver](#) failure (ALF) is a life-threatening condition associated with rapid loss of liver function—over a period of days or weeks—in a previously healthy person. Acute-on-chronic liver failure (ACLF) develops in a patient with pre-existing [chronic liver disease](#).

Critically ill patients with liver disease are at risk of unique manifestations affecting various organ systems. "Strategies used to manage organ complications in general critical illness are not always applicable to the care of the patient with liver failure," according to the guideline statement. Through a formal review and guideline development process, the Committee approved 29 evidence-based recommendations in five areas:

- *Cardiovascular.* Patients with ALF or ACLF are at risk of circulatory abnormalities leading to inadequate blood flow (shock). Recommendations address the choice of resuscitation fluid and use of vasopressor drugs in patients ALF/ACLF in shock. The guidelines also include recommendations for blood pressure monitoring, including the use of invasive hemodynamic monitoring.
- *Hematology.* Recommendations address the risks of bleeding and venous thromboembolism (VTE—blood clot-related complications) associated with ALF and ACLF. The guidelines address prevention and treatment of VTE and assessment of bleeding risk before invasive procedures.
- *Pulmonary.* Several recommendations address preferred strategies for mechanical ventilation in patients with ALF/ACLF. The guidelines also discuss the management of some unique complications of chronic liver failure, including hepatopulmonary syndrome ([low oxygen levels](#) due to abnormal blood flow to the lungs) and hepatic hydrothorax (excess fluid around the lungs).
- *Renal.* Issues related to decreased kidney function in patients with ALF/ACLF are analyzed. Due to lack of evidence, no [recommendation](#) is made for renal replacement therapy (RRT, or dialysis) during liver transplant surgery. Early RRT is recommended for patients with acute kidney injury, a common complication of ALF. Other recommendations address

hepatorenal syndrome, a distinct type of kidney injury occurring in patients with cirrhosis.

- *Endocrine and Nutrition.* The guidelines include recommendations for monitoring and control of blood glucose levels in patients with ALF/ACLF; the role of stress-dose steroids in patients with septic shock; and the use of enteral feeding. Recommendations call for drug screening to identify the wide range of potential causes of ALF/ACLF and medication dose adjustment for patients with decreased liver function.

Although the guidelines reflect the latest research on each topic, most of the recommendations are based on "low-quality indirect evidence"—for a few clinical questions, no evidence-based recommendation could be made. The Committee highlights areas in need of further research to better inform clinical practice. While acknowledging the limitations of the recommendations regarding the complex challenges in critically ill patients with ALF/ACLF, the Guideline authors conclude: "Our approach led to the generation of a contemporary document that can be used as a reference for clinicians."

More information: Rahul Nanchal et al, Guidelines for the Management of Adult Acute and Acute-on-Chronic Liver Failure in the ICU, *Critical Care Medicine* (2020). [DOI: 10.1097/CCM.0000000000004193](https://doi.org/10.1097/CCM.0000000000004193)

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