Can we beat hypovolemia using ultrasound?

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Acute conditions in intensive care medicine often require a rapid and adequate response from the entire medical team, including nurses and technicians. Sometimes, this means learning and applying methods that accelerate the diagnostic and treatment process for the patient.

Ultrasound-guided fluid resuscitation is one of the techniques that nurses and technicians at the Department of Intensive Care Medicine at the University Hospital Centre Zagreb have successfully learned. When dealing with patients in acute hypovolemia, we encounter hypovolemic and distributive shock, where fluid administration is crucial for maintaining hemodynamic stability. By following the FALLS (Fluid Administration Limited by Lung Sonography) protocol for determining fluid resuscitation needs[1], physicians and nurses can simply and non-invasively assess the patient's volume status, not relying solely on the display of the inferior vena cava, but also on pleural ultrasound, which shows the presence of A and B lines that clearly indicate pulmonary interstitial fluid overload. B lines, as hyperechogenic segments, clearly show the presence of solid material in the otherwise empty lung space and are a key indicator of circulatory overload or respiratory failure[2]. In addition to the patient's initial condition, lung ultrasound can also monitor the body's response to fluid resuscitation and simultaneously rule out conditions that can disrupt this balance, such as cardiac tamponade and pulmonary embolism. The FALLS protocol has proven particularly useful in treating patients with weakened left ventricular function, as it allows for early detection and prevention of pulmonary edema, which can be fatal for the patient, while maintaining hemodynamics without excessive use of vasopressor support.

The role of nurses and technicians in understanding ultrasound diagnostics and fluid resuscitation protocols can be crucial in life-threatening situations for patients. With their knowledge and skills, they will contribute to raising the standards of healthcare and intensive care medicine.

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LITERATURE

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