

POSTER PRESENTATION

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Fluid responsiveness predicted by transcutaneous partial pressure of oxygen in critically ill patients

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Objectives

Our goal was to study the feasibility of predicting fluid responsiveness by transcutaneous partial pressure of oxygen (PtcO₂) in the critically ill patients.

Methods

This was a single centre prospective study conducted in the intensive care unit of a tertiary care teaching hospital. Patients for whom the attending physician decided to perform a fluid challenge or presence of at least one clinical sign of inadequate tissue perfusion in the absence of contraindication for fluid infusion were eligible to participate in the study. PtcO₂ was used to continuously record at baseline, during a passive leg raising (PLR), and then during a 250 ml rapid saline infusion in 10 minutes. Fluid responsiveness is defined as a change of stroke volume $\geq 10\%$ after 250 ml volume infusion.

Results

Twenty-three patients were included; of whom, 9 responded to volume expansion. In the 9 responders, heart rate, mean arterial pressure, pulse pressure, central venous pressure, cardiac output, stroke volume, PtcO₂ all increased significantly ($p < 0.05$). Fluid responsiveness was predicted by the PLR-induced change of 13.9% in PtcO₂ (area under receiver-operating characteristic curve 0.932) with a sensitivity of 77.8% and a specificity of 100%.

Conclusions

In this prospective study, it is suggested that the newly defined parameter, PtcO₂ changes during the volume expansion or PLR appears to be a good parameter to predict fluid responsiveness.

Trial Registration NCT02083757

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