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Lung ultrasonography for detecting fluid overload in intensive care patients early after surgery: A preliminary study

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Aim: To investigate whether lung ultrasound can be used to detect fluid overload in the intensive care unit early after surgery.

Method: This prospective study involved 60 patients without known cardiac or pulmonary diseases admitted to the intensive care unit at our hospital after elective abdominal or vascular surgery. The inferior vena cava collapsibility index (IVCcl), PaO2/FiO2 ratio, and appearance of B-lines were determined upon admission to the intensive care unit and at 6, 12, and 24 h later. Fluid overload was defined as IVCcl≤40% and the presence of B-lines ≤7 mm. Tissue oxygenation impairment was defined as a PaO2/FiO2 ratio <200.

Result: Fluid overload was detected in 42 patients (70%). The combination of dense B-lines and IVCcl ≤40% predicted fluid overload around the same time as drop of PaO2/FiO2 ratio (p=0.115). Appearance of dense B lines correlated strongly with PaO2/FiO2 ratio (p<0.001), while IVCcl did not correlate with PaO2/FiO2ratio (p=0.071).

Conclusion: Our preliminary results suggest that lung ultrasonography may be a promising non-invasive method for early detection of fluid overload in spontaneous breathing intensive care patients soon after surgery. Our findings should be verified in larger studies.

Biography

Maja Karaman Ilić is an Anesthesiologist and IC Medicine Specialist. Presently, she is working at Clinical Hospital Sveti Duh, Zagreb, Croatia. She is an Assistant in Faculty of Medicine, J J Strossmayer University of Osijek, Croatia. Her expertise has been focused on "Validation of non-invasive monitoring in volume status estimation of patients in intensive care unit".

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