

# Lung ultrasound for detection of increased extravascular lung water in cardiac and non-cardiac patients who underwent non-cardiac surgical procedures

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## Abstract

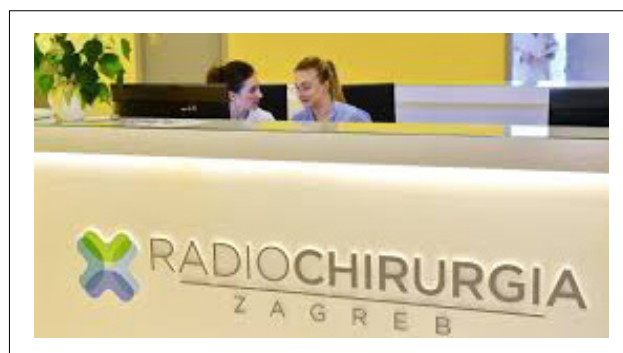
**Aim:** Prevention of post-operative cardio-respiratory deterioration in cardiac and non-cardiac patients who have undergone non-cardiac surgical procedures due to perioperative fluid overload.

**Introduction:** Induction in general anesthesia (GA) drives patients in hypotension. Vasodilation, particularly veno-dilatation, is the primary cause of relative hypovolemia produced by anesthetic drugs. Relative hypovolemia is a consequence of increased venous compliance, decreased venous return, and reduced response to vasoactive substances. Maintenance of adequate cardiac output (CO) and arterial blood pressure is vital for preserving tissue perfusion and oxygen delivery (DO<sub>2</sub>). To preserve CO and adequate organ perfusion, anesthesiologists may choose between a liberal perioperative fluid approach and a restrictive one with a small dose of vasoactive drugs. Each choice carries its own risks. In general, a liberal perioperative volume replacement strategy is a more common choice. As a consequence of selected therapy, fluid overload is often seen. The clinically most significant complication of the excessive volume is "Lung -Swelling" respectively - pulmonary edema. Standard monitoring that includes clinical exam, chest X-ray, oxygen saturation of peripheral blood (SpO<sub>2</sub>), and blood lactate level lacks sensitivity and specificity for pulmonary edema diagnosis. Additionally, those are late indicators of tissue and organ hypoperfusion. Lung ultrasound provides high diagnostic sensitivities and specificities in detecting various lung pathologies: interstitial syndrome (interstitial sy), pneumothorax, and alveolar consolidation. Interstitial sy represents a variety of clinical situations, including pulmonary edema, respiratory distress syndrome, pneumonia, and interstitial diseases. Due to the development of pulmonary edema, the transition of A-profile (normal lung ultrasound finding) to B-profile (that is specific for interstitial sy) occurs. These findings enable us to act therapeutically even before the late indicators of cardio-respiratory deterioration appear.

**Conclusion:** Lung ultrasonography is a helpful, non-invasive method for early detection and treatment of perioperative fluid overload.

## Biography

Assistant professor Maja Karaman Ilić, M.D, Ph.D In 2011. She received Ph.D. from the Zagreb University School of Medicine. In 2018. She was elected assistant professor at Faculty of Medicine, J.J. Strossmayer University of Osijek, Croatia. Since 2019 She has been working at Radiochirurgia Sveta Nedjelja, Croatia as an expert in anesthesiology, resuscitation, and intensive care. Some of her papers were published in reputed journals. Since 2017. She was invited speaker to Cardiologists conference in Paris 2017., Barcelona 2018., and Rome in June 2019.



5<sup>th</sup> World Congress on Cardiology and Cardiac Nursing | December 14, 2020

**Citation:** Maja Karaman Ilić, Lung ultrasound for detection of increased extravascular lung water in cardiac and non-cardiac patients who underwent non-cardiac surgical procedures, Cardio Summit 2020, 5th World Congress on Cardiology and Cardiac Nursing, December 14th, 2020, Page No : 07