



Lung ultrasound for interstitial syndrome development monitoring et 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 procedure 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 are vital for preserving tissue perfusion and oxygen delivery (DO₂). To preserve CO and adequate organ perfusion, anesthesiologists may chose between liberal perioperative fluid approach and a restrictive one with small dose of vasoactive drugs. Each choice carries its own risks. In general, a liberal perioperative volume replacement strategy is more common choice. As a consequence of selected therapy, fluid overload is often seen. The clinically most significant complication of excessive volume is "Lung -Swelling" respectively - pulmonary edema.

Standard monitoring that includes clinical exam, chest X ray, oxygen saturation of peripheral blood (SpO₂) and blood lactate level lacks sensitivity and specificity for pulmonary edema diagnose. Additionally, those are late indicators of tissue and organ hypo-perfusion.

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, transition of A-profile (normal lung ultrasound finding) to B-profile (that is specific for interstitial sy) occurs. This 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.

Reference

Anthony Mclean, Stephen Huang. Lung and pleural ultrasound. In: Critical Care Ultrasound Manual. Chatswood, NSW: Elsevier Australia, 2012; 126-134.



Biography:

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In 2011. I received my Ph.D. from the Zagreb University School of Medicine.

In 2018. I was elected Assistant Professor at Faculty of Medicine, JJ Strossmayer University of Osijek, Croatia.

Since 2019 I have been working at Radiochirurgia Sveta Nedjelja, Croatia as an expert in anesthesiology, resuscitation and intensive care.



Some of my papers were published in reputed journals. Since 2017. I am an invited speaker on Cardiologists conference in Paris 2017. , Barcelona 2018., and Rome in June 2019.

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