

Prognostic Value of Lung Ultrasound in Predicting Intensive Care Unit Length of Stay in Adult Cardiac Surgery: A Prospective Observational Study

By

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Abstract

Background: lung ultrasound examination is gaining popularity in patient assessment and guiding patient management. A new ultrasound score was predictive for prolonged intensive care stay in pediatric cardiac surgery, so we evaluate the role of the new lung ultrasound score in predicting the length of postoperative intensive care stays after adult cardiac surgeries.

Methods: This prospective observational study collected data from 191 adult patients admitted to the ICU following elective cardiac surgery without severe respiratory disease. Lung ultrasound examinations were done after 12 hours of ICU admission, and six lung areas were examined on each side, giving a score for each area. The primary outcome is the ICU length of stay in days.

Results: On univariate analysis, prolonged intensive care stay was statistically associated with increased age, higher euro score, elevated ICU lactate, long CPB time, the use of multiple inotropes, the occurrence of major ICU complications, late extubation, and total lung ultrasound score. The lung ultrasound score was higher for patients who had long ICU stays (median 6.5, IQR 8) than those who had short ICU stays (median 3, IQR 3) with a p-value less than 0.001. Multivariate logistic regression analysis revealed significance for age, EuroSCORE II, ICU lactate (12 h), CPB time, the occurrence of major ICU complications, and total LUS score.

Conclusion: After 12 hours of cardiac surgery, the postoperative lung ultrasound score has a predictive value of intensive care stay and hospital stay.