

Commentary on “Prediction of Successful Spontaneous Breathing Trial and Extubation of Trachea by Lung Ultrasound in Mechanically Ventilated Patients in Intensive Care Unit”

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Dear Editor,

We read with interest the article by Rajbanshi et al.¹ published in the recent issue of *IJCCM* examining the ability of lung ultrasound score (LUS) to successfully predict ventilator liberation in mechanically ventilated patients in the intensive care unit. Firstly, we would like to congratulate the authors for their work, and the study certainly adds to the ever-increasing evidence in favor of the use of bedside USG in facilitating ventilator liberation. However, we feel certain findings of their study need further clarification.

The objective of the study was to assess the ability of LUS to predict successful spontaneous breathing trials (SBT) and tracheal extubation. The authors have compared the lung ultrasound profile of the successful versus failed SBT groups in Table 2. As noted in their study, B-profile in lung ultrasound which signifies lung congestion was present equally in both groups (31%). According to their study, the major determining factor for SBT failure appears to be the presence of a C-profile. This evokes surprise as it has been shown in multiple studies that loss of lung aeration since or wet lung (reflected by B-profile) on lung USG is a major cause of weaning failure². We wonder what could be the reason for such discordant findings in the present study.

Secondly, the authors did not compare the extubation failure ($n = 16$) versus extubation success ($n = 57$) groups in terms of their ultrasonographic and other variables. This could have helped us better understand how much LUS and other parameters influence extubation success and failures.

Thirdly, the authors have not reported the cumulative fluid balance during ICU stay before extubation, which we feel can influence the state of lung aeration/deaeration. Finally, the authors built a multiple logistic regression model to explore the factors which can predict successful SBT. We wonder if those factors were chosen at random. Ideally, a univariate analysis to include factors significantly different between weaning success and failure groups could have possibly added more strength to the multivariate logistic regression model.

The authors looked only at LUS in the current study. Given the ability of bedside ultrasound to reliably image the heart and the diaphragm, we feel a holistic USG protocol looking at all variables provides us with better guidance toward the challenging process of ventilator liberation.³

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We congratulate the authors for their notable work but the additional points, in our opinion, shall provide further clarity on this topic.

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REFERENCES

1. Rajbanshi LK, Bajracharya A, Devkota D. Prediction of successful spontaneous breathing trial and extubation of trachea by lung ultrasound in mechanically ventilated patients in intensive care unit. *Indian J Crit Care Med* 2023;27(7):482–487. DOI: 10.5005/jp-journals-10071-24487.
2. Soummer A, Perbet S, Brisson H, Arbelot C, Constantin JM, Lu Q, et al. Lung ultrasound study group ultrasound assessment of lung aeration loss during a successful weaning trial predicts postextubation distress. *Crit Care Med*. 2012;40(7):2064–2072. DOI: 10.1097/CCM.0b013e31824e68ae.
3. Kundu R, Baidya D, Anand R, Maitra S, Soni K, Subramaniam R. Integrated ultrasound protocol in predicting weaning success and extubation failure: a prospective observational study. *Anaesthesiol Intensive Ther* 2022;54(2):156–163. DOI: 10.5114/ait.2022.115351.