CORRESPONDENCE

Left ventricular diastolic dysfunction as a predictor of weaning failure from mechanical ventilation. Author's reply

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Dear Editor,

We thank Ashish K. Jha for his interest in our article [1] and also wish to congratulate him on his very educational summary of left ventricular diastolic dysfunction (LVDD) during the weaning process [2]. We fully agree that LVDD with high filling pressure is a relevant cause of weaning failure.

In our study including elderly patients, the pre-test probability of an increase in LV filling pressure during spontaneous breathing trial (SBT) was high. During SBT in this population, however, we observed that an increase in LV filling pressure may occur without inducing pulmonary oedema; conversely, an increase in the lung ultrasound (LUS) score may occur without any increase in LV filling pressure. Thus, cardiac echography alone offers limited utility in predicting weaning failure, and the B-lines in the LUS alone are not enough to confirm weaning-induced pulmonary oedema.

However, LUS predicts extubation failure reliably, because decreased pulmonary aeration is a final and common result in patients whose extubation fails for various reasons. Thus, LUS facilitates the detection of both cardiogenic and noncardiogenic causes of weaning failure (i.e., decreased pulmonary aeration) and could offer an invaluable tool in ICUs during the weaning process. Consequently, we proposed, as have others [3, 4], that a two-step approach be taken to improve the weaning process: (1) LUS assessment at the end of SBT should be required in all patients to identify those patients at high risk of extubation failure, and (2) cardiac ultrasound should be used in the weaning failure group to identify the mechanism and guide treatments to promote extubation success, in particular among patients with LVDD.

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Compliance with ethical standards

Conflicts of interest
Bélaid Bouhemad declares no conflict of interest; Silvia Mongodi received fees for lectures from GE Healthcare, unrelated to the present work. Francesco Mojoli received fees for lectures from GE Healthcare, Hamilton Medical and SEDA SpA, unrelated to the present work. A research agreement is active between University of Pavia and Hamilton Medical, unrelated to the present work.

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