Diagnosis of Cardiogenic Pulmonary Edema by Sonography Limited to the Anterior Lung

To the Editor:

We read with interest the article in CHEST (July 2008) by Lichtenstein and Mezérie on the diagnostic value of lung ultrasound in patients with acute respiratory failure. They examined 64 patients with pulmonary edema in the ICU and observed prevalent B-lines on each side of the anterior chest (the B profile) in 62 cases. Based on these findings, the proposed Bedside Lung Ultrasound in Emergency (BLUE) protocol rules out the diagnosis of cardiogenic pulmonary congestion when the anterior chest scans do not show the B profile.

Our previous two studies in patients who had been admitted to the emergency department seem to be in disagreement with this view. We performed lung ultrasonography in 130 dyspneic patients admitted to the emergency department (July 2008)3 stressed a correlation between pulmonary edema and the B profile. Volpicelli and colleagues1,2 pointed out cases of pulmonary edema without the B profile. In actual fact, we believe there is no discordance between their results and ours; rather, they are complementary. As Volpicelli and colleagues say, the severity of their patients’ illness was different (patients were able to keep the supine position, and most did not require instrumental therapy). The time at which these results were recorded, up to 48 h after hospital admission,3 is important since B lines vanish during therapy. Most of their patients had the B profile, however. Those patients with no B profile (14.8%, considering only patients examined at hospital admission2) should indeed be referred to as having the mildest cases. This hypothesis was probably extended to the whole lung despite gravity and vascularity. The milder forms of ADHF do not necessarily show anterior symmetric B lines, because congestion initially involves the inferior lobes.4 Moreover, comorbidities occur frequently with a possible asymmetric distribution of edema due to morphologic changes in the lung parenchyma of COPD patients.4 (2) A different timing of the sonographic examinations could be confounding. It has been shown that B lines significantly clear after treatment in patients who have been admitted to the hospital for ADHF.3

Despite this discrepancy, we strongly believe in the high clinical value of the BLUE protocol as validated in critically ill patients. At the same time, we remain convinced that in daily practice in the emergency department sonographic examinations of the lateral chest areas (requiring a few seconds more time) is mandatory to diagnose even asymmetric or mild pulmonary congestion and the conditions modified by initial treatment.

The authors have reported to the ACCP that no significant conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians (www.chestjournal.org/misc/reprints.shtml). Correspondence to: Giovanni Volpicelli, MD, San Luigi Gonzaga Hospital, Emergency Medicine, Regionale Gonzoiole 10, Orbassano, Torino 10043, Italy; e-mail: volpicelli@tin.it

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Response

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We are pleased to see the interest of Volpicelli and colleagues in lung ultrasonography and the BLUE protocol. Our observations (July 2008) stressed a correlation between pulmonary edema and the B profile. Volpicelli and colleagues pointed out cases of pulmonary edema without the B profile. In actual fact, we believe there is no discordance between their results and ours; rather, they are complementary. As Volpicelli and colleagues say, the severity of their patients’ illness was different (patients were able to keep the supine position, and most did not require instrumental therapy). The time at which these results were recorded, up to 48 h after hospital admission, is important since B lines vanish during therapy. Most of their patients had the B profile, however. Those patients with no B profile (14.8%, considering only patients examined at hospital admission) should indeed be referred to as having the mildest cases. This hypothesis

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The authors have no conflicts of interest to disclose.

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