D. Georgopoulos
N. Xirouchaki

Response to Katz et al.: Lung ultrasound in the intensive care unit: an idea that may be too good to be true

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Dear Editor,

We would like to thank Dr. Katz and colleagues [1] for their interest in our editorial [2] as well as for giving us the opportunity to better clarify our view regarding the value of lung ultrasound (LU) as a diagnostic and monitoring tool in critically ill patients. We never claimed that “ultrasound may be considered an alternative to thoracic CT”. We clearly stated that first-line lung ultrasound may be an alternative to thoracic CT in most situations commonly encountered in these patients. Specifically, it has been shown that lung ultrasound has high diagnostic accuracy in identifying pneumothorax, consolidation/atelectasis, interstitial syndromes (i.e., pulmonary oedema of cardiogenic or noncardiogenic origin), and pleural effusion, and, on the appropriate clinical grounds, it may help in the diagnosis of pneumonia [2]. We and others have clearly shown the superiority of lung ultrasound over bedside chest radiography in identifying these specific pathological entities [3, 4]. In these studies thoracic CT was the gold standard imaging technique.

We believe that regarding our previous study [5] in which the value of LU in clinical decision making was

evaluated, Katz et al. misinterpreted both the purpose and data of the study. The aim of this study was to examine the impact of performing LU on clinical decision making in critically ill patients and not to compare LU with other imaging modalities. The latter has been performed previously (comparison of LU to thoracic CT) [3, 4]. The results of our previous study [3], showing that the diagnostic accuracy of LU in identifying specific pathologic entities is similar to thoracic CT, permitted us to examine the impact of LU on decision making [5]. The patients were enrolled in the study when LU was requested by the primary physician for unexplained deterioration of arterial blood gases and/or a suspected pathologic entity and when an experienced operator (NX) was available. The latter is certainly a limitation and we agree with Katz et al. on this point. Nevertheless, this limitation is not inherent to LU but concerns ultrasound imaging in general. In this study CT was not performed in every patient. Therefore, the statement of Katz et al. that “there was no correlation of ultrasound with CT findings in 246 of 253 patients” is inappropriate and totally misleading. Simple thoracic CT was only performed in 7 patients (not in 253 patients) and for reasons unrelated to the study.

We agree that, from a radiological and possibly clinical point of view, consolidation is not synonymous with atelectasis. However, the clinical picture of the patients may, in most cases, help the physician/intensivist to differentiate between these two entities and in addition to use LU as a tool to monitor the impact of any intervention on the patient's status. It is worthy of mention that both atelectasis and consolidation may affect the patient through common pathophysiological mechanisms, variables such as the shunt fraction, which are

vital for patient status. It also seems that Katz and colleagues underestimated the strength and value of the clinical history/picture to differentiate pulmonary oedema from pneumonia and interstitial fibrosis from interstitial oedema. On appropriate clinical grounds, LU findings may be of great help to differentiate these conditions. Finally, we do not agree with Katz et al.'s suggestion of a randomised control trial to prove the value of echography in critically ill patients.

Conflicts of interest None.

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D. Georgopoulos (✉) · N. Xirouchaki
Intensive Care Medicine Department,
University Hospital of Heraklion, Medical
School, University of Crete, Heraklion,
Crete, Greece
e-mail: georgop@med.uoc.gr