Lung ultrasound in the emergency setting: Accuracy cannot exclude expertise: Response

Lung Ultrasound in the Emergency Setting: Response

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To the Editor:

We appreciate the comments of Drs Cipriani and Ghittoni, which give us the opportunity to further clarify the message of our study.[1] We believe our study demonstrates that an integrated approach combining lung ultrasonography (LUS) and the standard clinical assessment significantly improves the accuracy of the diagnostic process for acute decompensated heart failure (ADHF). We do not believe that the study outcome can be summarized as "chest radiography (CXR) showed moderate accuracy in the identification of ADHF." The poor diagnostic performance of CXR for identifying ADHF is not a new finding.[2,3] Although very specific, detection of pulmonary venous congestion, interstitial edema, or alveolar edema on CXR has unacceptably low sensitivity.[3] Current guidelines, indeed, caution physicians from using CXR in the diagnosis of ADHF, instead highlighting the value of CXR in the identification of alternative pulmonary causes of a given patient's dyspnea.[4]

In their letter, Drs Cipriani and Ghittoni suggest that the "low value of the standard workup could, in selected cases, possibly be related to poor professional accuracy of operator in charge of performing the workup, interpreting the results, or both." This statement is unsubstantiated. In our study, the sensitivity and specificity of the standard evaluation were as high as 85.3% and 90%, and LUS implementation was able to further increase them to 97% and 97.4%.[1] Although our study included ED physicians with varying levels of expertise, we believe this is part of real-world practice and should have equally affected both clinical and LUS-implemented approaches. In addition, LUS is highly reproducible and easy to learn as compared with CXR interpretation, even when performed by physicians with minimal training.[1,5] Finally, we remind Drs Cipriani and Ghittoni that our study was conducted in seven EDs from academic, university-affiliated, and community[1] hospitals, providing a level of external validity not previously available in similar studies.

Drs Cipriani and Ghittoni also question the methodology used to compare the performance of CXR and LUS. In our study, the CXR reports completed by staff radiologists were compared with the original LUS findings obtained by ED physicians. No new a posteriori revision of LUS loops was

performed; we simply categorized the presence of diffuse interstitial syndrome as ADHF on the basis of case report forms completed at the time of the examination.

In conclusion, we believe that our study, rather than encouraging indiscriminate LUS use, suggests a sound and prudent use of LUS integrated in the diagnostic evaluation of patients presenting to the ED with acute dyspnea. LUS implementation should not raise unjustified alarms but rather be evaluated, as with all novel medical technologies, using a scientific and unbiased approach.

References

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