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COVID-19 Diagnostic Imaging: Caution Need Before the End of the Game

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Dear Editor—We read the interesting letter of Khalili et al. about the role of lung ultrasound (LU) in diagnosing COVID-19 interstitial pneumonia during the recent SARS-CoV-2 global outbreak (1). We would like to present our different point of view. The Authors, after listing some of the benefits of LU, argue that it suffers from lower sensitivity than computed tomography (CT) and for this reason, it would not be useful in the diagnosis of COVID-19 pneumonia. However, Yang et al. compared LU and CT on 29 patients (for 540 lung regions) (2) and found that LU was more sensitive than CT in the diagnosis of regional alveolar-interstitial pattern, alveolar-interstitial syndrome, consolidations, and pleural effusion (60% vs. 38.5%; 93% vs. 69%; 39% vs. 3% and 74% vs. 16%, respectively). Khalili et al. correctly report that the most common imaging finding in COVID-19 pneumonia is widespread interstitial involvement. Therefore, we see no reason why LU cannot be used for the diagnosis of COVID-19 pneumonia, considering its comparable sensitivity, even superior to the CT scan. Furthermore, the recent study by Almeida Monteiro et al. confirmed the correlation between histological findings on lung biopsy and LU images (3). This report not only supports the correctness of the hypothesis (and his clinical and LU observations) of Volpicelli et al. (4) but also confirms the high sensitivity of LU in diagnosing COVID-19 pneumonia at different stages.

The second aspect that Khalili et al. seem not to have taken sufficiently into account is the prevalence of the disease during the COVID-19 epidemic peak. The medical chief of the Emergency Department of the main hospital in Bergamo reported seeing up to 60−80 suspected patients for COVID-19 in only a few hours (5). We do not know the size and resources of the hospital structure in which Khalili and colleagues work, but the execution of 30 CT scans per hour is simply inconceivable. In these circumstances the high sensitivity of LU (together with its safety, the possibility of performing it at the patient's bedside and of avoiding the transfer of a potentially infected patient around the hospital) is precisely the characteristic that makes LU the preferred tool for mass triage (6). Even though the incidence of COVID-19 seems to have decreased, and it is essential to be able to rule out lung involvement by COVID-19 in a vast portion of the asymptomatic population, LU appears to be the tool of choice. We have repeatedly stressed in our previous papers that LU does not seem to be adequately specific for COVID-19 pneumonia (7-9). But in this regard, a recent meta-analysis reports a very low specificity even for CT scan (10). Therefore, the specificity game between LU and CT scan is far from over. On one point, we agree with Khalili and colleagues: it would take adequately sized studies to establish the diagnostic accuracy of LU in terms of sensitivity and specificity. But we are confident that these studies will be soon available.

AUTHORS' CONTRIBUTIONS

DO and LV concept, design and drafting the manuscript. TB, CD, FB critical review the manuscript for important intellectual content. All authors read and approved the final manuscript.

CONFLICT OF INTEREST

None.

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