

Can the Ultrasound Probe Replace the Stethoscope?



Auscultation is used in most routine examinations of critically ill patients and is considered to be one of the essential components of the clinical examination. Two of the most frequent pathologies encountered in critically ill patients are pulmonary oedema and pneumonia. Both of these conditions often coexist.

In recent years, many clinicians have started to use lung ultrasound (LUS) as a diagnostic tool for a variety of pulmonary pathologies. There is sufficient evidence that supports the use of LUS in diagnosing pulmonary oedema and/or pneumonia. There are studies that also demonstrate the diagnostic value of LUS in patients with dyspnoea, pneumothorax, high-altitude pulmonary oedema and cardiogenic pulmonary oedema. In addition, LUS may also be superior to chest X-ray and comparable to chest CT scan for the diagnosis of pulmonary oedema and interstitial syndrome.

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There are very few studies today that have compared LUS to pulmonary auscultation. In particular, there are no studies that have compared auscultation with LUS in the ICU setting. This study was conducted to compare the agreement of LUS with pulmonary auscultation for the detection of pulmonary oedema in acutely ill patients who were admitted to the ICU. The hypothesis of the study was that auscultation for pulmonary oedema would have insufficient agreement compared to LUS.

926 patients were included in the analysis. Study participants underwent clinical examination combined with lung ultrasound. This included auscultation of the bilateral regions for crepitations and rhonchi and lung ultrasound conducted according to the Bedside Lung Ultrasound in Emergency protocol.

33% of the patients fulfilled the criteria for pulmonary oedema on lung ultrasound. Auscultation was normal in 51% of these patients. 32% of the patients had audible crepitations or rhonchi upon auscultation. From 130 patients with crepitations, 66% had pulmonary oedema on lung ultrasound, and from 209 patients with rhonchi, 46% had pulmonary oedema on lung ultrasound.

Overall, these findings suggest that the agreement between auscultation and LUS for detecting pulmonary oedema is poor. The stethoscope may be the most frequently used instrument at the bedside but auscultation has a lower diagnostic accuracy for alveolar-pulmonary oedema compared to LUS. Physicians still use auscultation to detect pulmonary oedema but this study shows that auscultation may not be very reliable for detecting oedema, particularly in the ICU setting. Ultrasonography has now become easily available and clinicians could benefit from integrating this technology into their clinical practice when taking care of the critically ill.

Source: [Critical Care](#)

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Published on : Mon, 27 Jan 2020