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The prognostic value of ultrasound lung comets in patients with pulmonary hypertension

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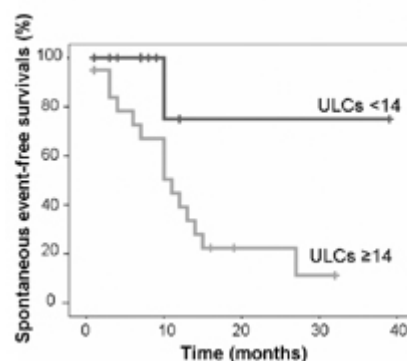
Background: Ultrasound Lung Comets (ULCs) consist of multiple comet tails originating from thickened interlobular septa, due to water or connective tissue accumulation. Therefore they are detectable in patients with several lung diseases.

Aim: To assess the prognostic value of ULCs in patients with pulmonary hypertension.

Materials and methods: 33 in-hospital patients (age 67 ± 13 years, 16 females) admitted to the Pneumology Division of Clinical Physiology in Pisa with diagnosis of idiopathic or secondary pulmonary hypertension were evaluated upon admission with a comprehensive 2D and Doppler echocardiography, and chest sonography with ULCs assessment. A patient ULC score was obtained by summing the number of comets from each of the scanning spaces in the anterior right and left hemithorax, from second to fifth intercostal spaces. By echocardiography, we measured Tricuspid Annular Plane Systolic Excursion (TAPSE) as an index of right ventricular function, and Pulmonary Artery Systolic Pressure (PASP) from tricuspid regurgitant jet velocity.

Results: During the follow-up, 16 events occurred: 4 deaths, 12 new admission for the worsening of symptoms or respiratory function. A ROC analysis identified 14 ULCs as the best diagnostic cut-off to predict events with 94 % sensitivity and 71 % specificity. The 9-months event-free survival was higher in patients with no ULCs and lower in patients with ULCs (see Figure). There was a weak significant correlation between ULCs and PAPs ($r = .541$, $p < .001$) and no correlation between ULCs and TAPSE ($r = .088$, $p = \text{ns}$).

Conclusion: ULCs are a simple, user-friendly, radiation-free bedside sign of thickened lung interlobular septa, adding a useful information for straightforward prognostic stratification of patients with pulmonary hypertension.



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