Ultrasound and CT scan combined monitoring in acute exacerbation of interstitial lung disease: a suggestive case

Dott. ANDREA COLOMBO (1), Dott.ssa SILVIA MONGODI (1), Dott.ssa ANITA ORLANDO (1), Dott. ANDREA STELLA (1), Dott. SANDRO PREGNOLATO (1), Dott.ssa GIULIA SALVE (1), Dott.ssa SILVIA BONAITI (1), Prof. GIORGIO ANTONIO IOTTI (1), Prof. FRANCESCO MOJOLI (1)

(1) Intensive Care Unit, Fondazione IRCCS Policlinico S. Matteo, University of Pavia, Pavia, Italia.

Argomento: Insufficienza respiratoria acuta e ventilazione meccanica

Introduction. CT-scan is considered the gold standard to diagnose and monitor pulmonary diseases in critical patients. Lung ultrasound (LUS) is a bedside alternative, with multiple applications for lung diseases' diagnosis and daily monitoring (1). LUS has been proposed also for diagnosis and outpatient follow-up of interstitial lung disease (ILD) (2) but has never been used to monitor acute exacerbations of ILD.

Discussion. A 28-year-old man, affected by dermatomyositis/polymyositis was admitted to ICU for hypoxemic respiratory failure requiring intubation. CT-scan showed bilateral ground-glass opacities and multiple consolidations. Once rules out infectious etiology, immunosuppressive therapy was started. To prevent overinfection, veno-venous ECMO was started and the patient was extubated. LUS was performed daily, examining 6 regions per hemithorax, each scored from 0 (normal) to 3 (complete consolidation). First global LUS score (obtained by the sum of regional scores) was 28; a progressive reduction until 17 was observed in 5 weeks (Fig.1), confirming positive response to immunosuppressive therapy with Rituximab and steroids. CT-scan performed 41 days after admission confirmed these findings. However, a complete lung recovery was not observed and LUS score ranged between 17 and 22, triggering a third CT-scan where lung evolution to fibrosis was described. High-flow nasal cannula was started. After an initial deterioration, a second slower reduction in lung ultrasound score was then observed, as confirmed by CT, allowing weaning from ECMO after 93 days with a LUS score of 15.

Conclusions. LUS score and CT-scan were here combined to monitor lung aeration. This case suggests that LUS can be useful as a bedside non-irradiating technique to daily monitor lung aeration and to integrate/trigger CT-scan in acute ILD exacerbations.

References.

(1) Mojoli F., Am J Respir Crit Care Med. 2018**;** (2) Gargani L., Rheumatology. 2009

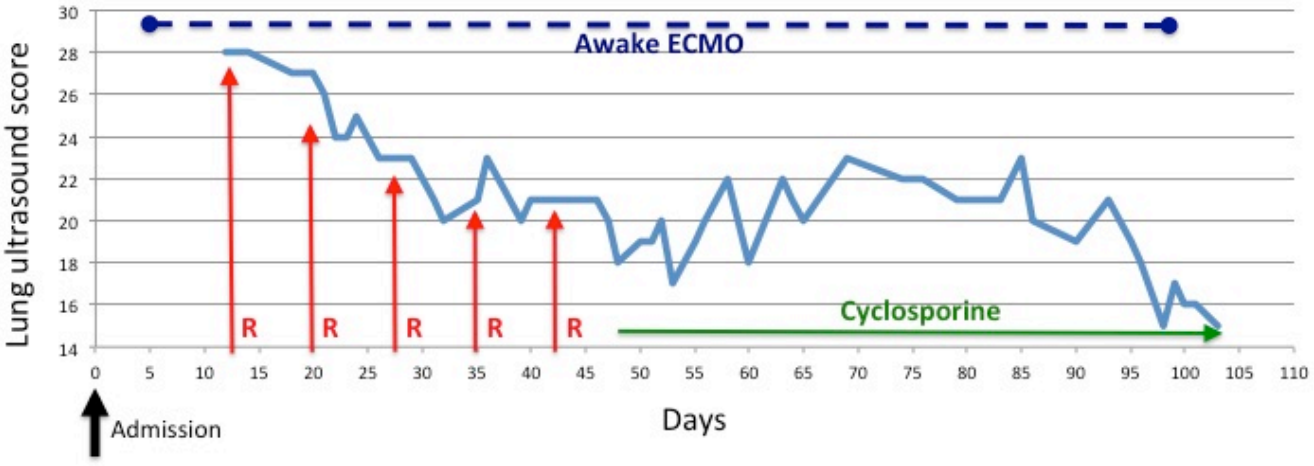

Figure 1. Lung ultrasound score during 93 days of extra-corporeal life support for acute exacerbation of interstitial lung disease (R: rituximab dose).