Lung Ultrasound in CF Exacerbation

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Aims: Considering the recurrent exacerbation of children with CF and frequent radiation exposure, lung ultrasound (LUS) might be a useful tool for evaluation of pulmonary changes; the aim of the paper is to evaluate the role of LUS in cystic fibrosis exacerbation.

Methods: An observational study included eighteen CF children admitted in acute exacerbation, for two year period. Lung ultrasound (LUS) was performed using a convex 3-5 MHz probe and a linear 7-12 MHz; specific US artifacts were used for detection of consolidation, alveolo-interstitial syndrome, pleural effusion and large bronchiectasis. CT was used as a gold standard for evaluation of structural changes.

Results: The most frequent LUS sign was the presence of B lines, in 94.4%. In two cases (11.1%), pneumonia was detected by LUS features specific for consolidation were found (associating pleural effusion in one); among patients wit significant lung deterioration a good correlation between LUS and CT findings was noted (r=0.85, p<0.001). In majority of patients (71.4%) US detected alveoli-interstitial lesions; none image specific for bronchiectasis were detected by ultrasound, compared to CT revealed their presence in 94% of patients, showing a low LUS/CT correlation (r=0.14, p=0.06).

Conclusion: Lung ultrasound is a reliable method for detection of pneumonia and pleural effusions in CF, also for an initial screening for large bronchiectasis. For small bronchiectasis, air trapping LUS was not useful.