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Comparison of adventitious respiratory sounds between stable COPD and AECOPD

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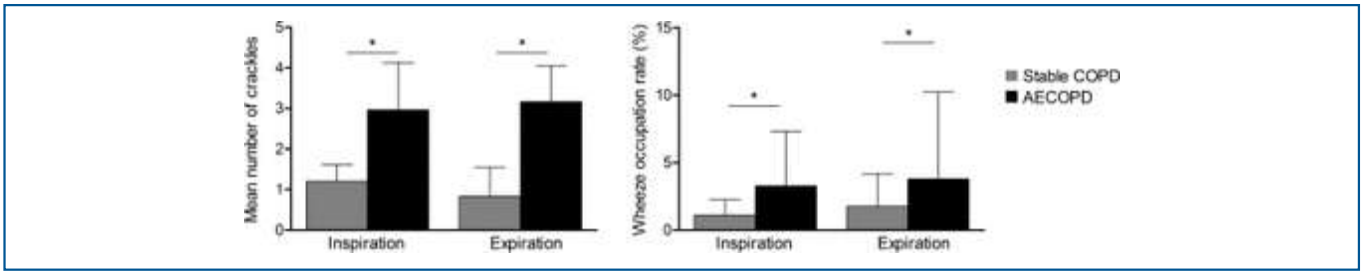
Abstract

Adventitious respiratory sounds (ARS) provide valuable information on the respiratory system and may contribute for diagnosing acute exacerbations in Chronic Obstructive Pulmonary Disease (AECOPD). However, it is unknown how ARS behave during stable and exacerbation periods of the disease. Thus, this study compared ARS between patients with stable and exacerbated COPD.

27 outpatients participated, 13 with stable COPD (69±9yrs; FEV_1 70.9±21.4% predicted) and 14 with an AECOPD (67±12yrs; FEV_1 58.7±19.8% predicted). Respiratory sounds were recorded simultaneously at posterior right and left chestusing stethoscopes with microphones in the main tube. Airflow was standardised (0.4-0.6l/s) and recorded with a pneumotachograph. Breathing phases were detected using the airflow signals and ARS with developed algorithms. Data are shown as median.

Groups presented no differences regarding age (p=.51) or GOLD grade (p=.41). Patients with AECOPD had significantly more inspiratory (2.97 vs. 1.20, p<.001) and expiratory (3.17 vs. 0.83, p<.001) crackles. Wheeze occupation rate was also significantly higher in patients with AECOPD during inspiration (3.28% vs. 1.12%, p=.019) and expiration (3.80% vs. 1.77%, p=.013) (Fig.1).



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Crackles and wheezes are significantly more frequent in patients with an AECOPD. These findings suggest that computerised auscultation can be a useful tool in the detection and/or follow-up of AECOPD.

COPD - exacerbations Lung mechanics Wheezing

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