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Title: May impairment of mucociliary clearance in COPD be reversible?

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Body: Chronic Obstructive Pulmonary Disease (COPD) patients exhibit modifications in mucociliary clearance (MCC) that contribute to sputum production and airway inflammation, which predispose this population to recurrent infections. It's known that ex-smokers with normal lung function may present MCC reversibility after smoking cessation, however in COPD ex-smokers it's unknown. Aim: To evaluate and to compare the MCC of smokers, COPD smokers and COPD ex-smokers. Methods: We evaluated 112 subjects, divided in five groups: severe COPD (n=22), moderate COPD (n=20), COPD smokers (17), current smokers (n=27) and non-smokers (n=26). Severe and moderate COPD patients were ex-smokers (FEV1% = 37,8±6 and 61±7; 60±49,7 and 62±45 pack/years; duration of smoking cessation = 11±10 and 6,2±3,7 years; respectively). COPD smokers and current smokers were maintaining the habit (FEV1% = 48,7±16,8 and 90,7±7; 31±24,8 and 40±21 pack/years; respectively). Non-smokers with normal lung function were matched for age. We evaluated MCC by Saccharin Transit Time (STT) test. Tests were conducted between 8 and 9 AM within air temperature and relative humidity controlled. Statistical analyses were performed using Kruskal-Wallis test followed by Dunn’s test. Results: STT was higher in COPD smokers and current smokers compared to both groups of COPD ex-smokers and non-smokers (p=0,001). There was no difference in STT between severe and moderate COPD ex-smokers, and their values of STT were similar to non-smokers. Conclusion: COPD ex-smokers showed better MCC compared to current smokers and COPD smokers, also presented MCC similar to non-smokers. These results suggest that quitting smoking, even in people who developed COPD, leads to MCC's reversibility.