Factors predicting exercise-induced oxygen desaturation in stable COPD

Prof. Dr Khaled 22634 Hussein Khaldhussein@yahoo.com MD ¹, Prof. Dr Atef 22631 Farouk Alkarn afaroukeg@yahoo.com MD ¹, Dr. Samiaa 22632 Hamdi samiaa_sadek@yahoo.com ¹, Prof. Dr Raafat 22633 El-Sokkary elsokkary100@yahoo.com MD ¹ and Prof. Dr Hamdy 22635 Shams ashams98@yahoo.com MD ². ¹ Department of Chest Diseases, Faculty of Medicine, Assiut University, Assiut, Egypt, 71111 and ² Cardiology Department, Faculty of Medicine, Assiut University, Assiut, Egypt, 71111.

Body: Background and objective: Some resting pulmonary function and blood gas parameters might predict exercise-induced oxygen desaturation in patients with stable COPD. We aimed at studying these factors. Patients and methods: We tested 55 patients with stable COPD (FEV₁/FVC%: 54.31). Resting pulmonary function, arterial blood gases, echocardiography, and incremental cardiopulmonary exercise testing were done for all patients. We diagnosed exercise-induced oxygen desaturation if O₂ saturation decreased ≥ 4% with exercise. We compared desaturated (DS) with non-desaturated (NDS) patients. Results: Exercise induced oxygen desaturation (DS) occurred in 28 subjects while 27 were non-desaturated (NDS). FEV₁% of predicted was significantly lower in DS (33.75±9.28) than NDS patients (49.49±19.86, P<0.001). Diffusing capacity DLCO % predicted was significantly lower in DS (47.54±20.25) than NDS (67.35±19.62, P<0.001). Resting O₂ saturation SaO₂ % was significantly lower in DS (91.9±2.88) than NDS patients (95.94±2.9, P<0.001). Resting PaCO₂ mmHg was significantly higher in DS (63.46±11.58) than NDS patients (38.97±6.38, P<0.001). Pulmonary artery systolic pressure mmHg was significantly higher in DS (42.21±11.90) than NDS (34.15±12.14, P<0.01). Medical Research Council MRC dyspnea score was significantly higher in DS (3.54±0.69) than NDS patients (2.44±0.97, P<0.001). On the other hand, there were no statistically significant differences in FEV₁/FVC%, total lung capacity, residual volume, and resting heart rate between the DS and NDS patients. Conclusion: FEV₁%, DLCO, resting SaO₂, resting PaCO₂, pulmonary artery systolic pressure and MRC dyspnea score can predict exercise-induced desaturation in stable COPD.