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Title: Is inspiratory capacity (IC) better correlated with functional exercise capacity than FEV1 in COPD patients?

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Body: Introduction In COPD, resting residual volume is increased and IC is decreased as a result of air trapping and hyperinflation. IC decreases further with activity and may correlate more strongly to exercise capacity than measures of airflow (FEV1). 6 minute walk test (6MWT) is an objective measurement of functional exercise capacity. Objectives The objectives were to examine the correlation between IC and exercise capacity using 6MWT (and FEV1 and exercise capacity) in COPD patients and to compare the correlation between IC and exercise capacity with FEV1 and exercise capacity in COPD patients. Methods This was a retrospective study. All COPD patients undergoing both 6MWT and spirometry and lung volumes in CGH from 1/1/2008 till 9/11/2011 were included. Results 144 subjects were included. Mean age (years) was 69.12(±8.93). 138/144(96.5%) were male. Mean FEV1 (L) was 1.33(±0.57). There was statistically significant correlation between FEV1 and 6MWT distance (simple linear regression coefficient, r=28.99, p=0.021, 95% confidence interval 4.42 to 53.57). After adjusting for cardiovascular disease, the correlation was still statistically significant(r=29.00, p=0.021, 95% CI 4.36 to 53.63). There was statistically significant correlation between IC and 6MWT distance(r=38.81, p=0.003, 95% CI 13.08 to 64.53). After adjusting for cardiovascular disease, correlation was still statistically significant(r=39.09, p=0.003, 95% CI 13.22 to 64.96). Conclusion IC is better correlated with 6MWT distance (functional exercise capacity)(p=0.003) than FEV1(0.021) in COPD patients. Thus, we concluded from this study that IC is a better predictor of exercise capacity than FEV1 in COPD patients.