2022

A Study to Compare Baseline Functional Residual Capacity and Forced Vital Capacity as a Predictor of Mortality and Hospitalization In a Cohort of Mild to Moderate Interstitial Lung Disease

O R. Gomez Rojas

E Naeem

F Ionescu

E Castillo

G B. Nair

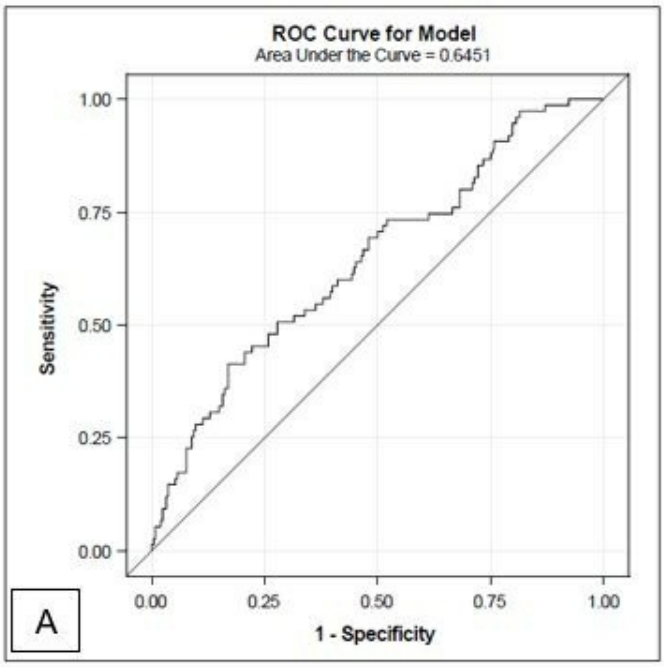
A Study to Compare Baseline Functional Residual Capacity and Forced Vital Capacity as a Predictor of Mortality and Hospitalization In a Cohort of Mild to Moderate Interstitial Lung Disease

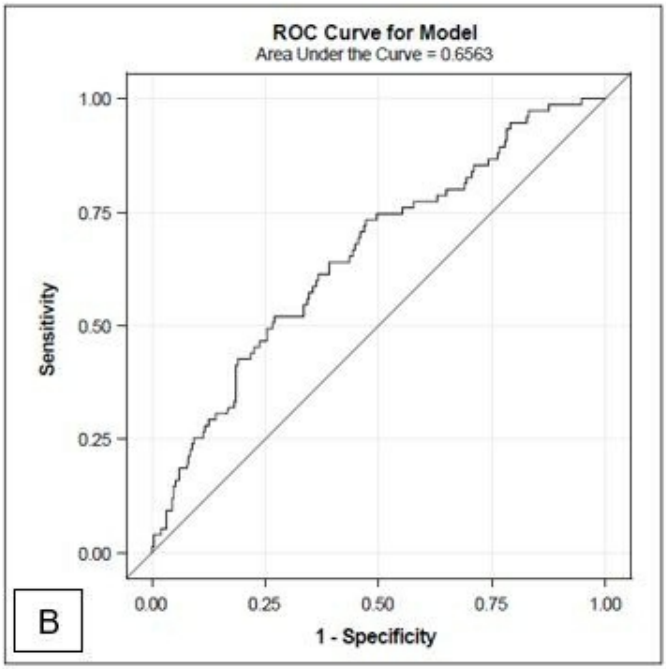
O. R. Gomez Rojas[1], E. Naeem[1], F. Ionescu[2], E. Castillo[3], G. B. Nair[4]; [1]Internal Medicine, Beaumont Health System, Royal Oak, MI, United States, [2]Hematology-Oncology, Mottiff Cancer Center, Tampa, FL, United States, [3]Biomechanical Engineering, University of Texas, Austin, TX, United States, [4]Pulmonary Division, Beaumont Health System, Royal Oak, MI, United States.

Corresponding author's email: olga.gomez.rojas.md@gmail.com

Background Forced Vital Capacity (FVC) is a common parameter used to assess disease progression in patients with Interstitial lung disease (ILD) and acts as a surrogate for mortality. Previous studies suggest Functional Residual Capacity (FRC) may be an earlier predictor of disease progression in ILD. In this study, we compared ability of baseline FRC to FVC to predict one-year-mortality and respiratory related hospitalization in patients with mild to moderate ILD. Methods We retrospectively analyzed a prospective cohort of ILD patients attending a multidisciplinary ILD program from Jan 2017 to Oct 2021 at a large Health care system. Patients who had baseline pulmonary function tests were included and events were monitored for up to 12 months. Primary outcome: composite of all-cause mortality and hospitalization due to respiratory failure. Results A total of 323 patients with ILD were included. 23.21% (75) patients experienced composite outcome within 12 months. Outcome was common in older patients (70.5 vs 65.8, $p<0.05$). There was no difference in outcome between patients with IPF vs. Non-IPF and gender. Baseline FRC (2.52 L vs. 2.58 L) and FRC percentage predicted (84.2 vs. 84.1) was not statistically different between those who had composite outcome compared to those who did not. Whereas, both lower FVC (2.76 L vs. 2.44 L, difference 0.313,95% CI: 0.086, 0.539, $p =0.006$) and FVC PP (79.8 vs. 72.1, difference 7.79, 95% CI: 2.66, 12.91, $p=0.003$) were significant predictors of one year mortality or/and respiratory related hospitalization. In the multivariate logistic regression analysis, FVCPP was statistically significant for disease progression after adjusting for age, gender, and diagnosis of IPF (adjusted odds ratio 0.98; 95% CI: 0.96-0.99). Conclusion In this cohort of patients with mild to moderate ILD, FRC at baseline was not a reliable predictor of one-year respiratory related hospitalization or mortality. However, both FVC and FVCPP are reliable markers even after adjusting for age, gender, and diagnosis of IPF.

Figure 1: Multivariate regression analysis of FVC (A) and FVCPP (B) to predict composite outcome of mortality or hospitalization after adjusting for age, gender, and diagnosis of IPF.





This abstract is funded by: None