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Olga R. Gomez Rojas

Ehsun Naeem

Filip Ionescu

Edward Castillo

Girish B. Nair

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

Olga Romina Gomez Rojas¹; Ehsun Naeem¹; Filip Ionescu²; Edward Castillo³; Girish B Nair⁴

¹Department of Internal Medicine, Beaumont Hospital, Royal Oak, MI ▪ ²Department of Hematology Oncology, Moffitt Cancer Center USF/Morsani Medical School

³Department of Radiation Oncology, Beaumont Hospital, Royal Oak, MI ▪ ⁴Department of Pulmonary Medicine and Critical Care Medicine, Beaumont Hospital, Royal Oak, MI

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 predictive ability of baseline FRC to FVC to predict one-year-mortality and respiratory related hospitalization in patients with mild to moderate ILD.

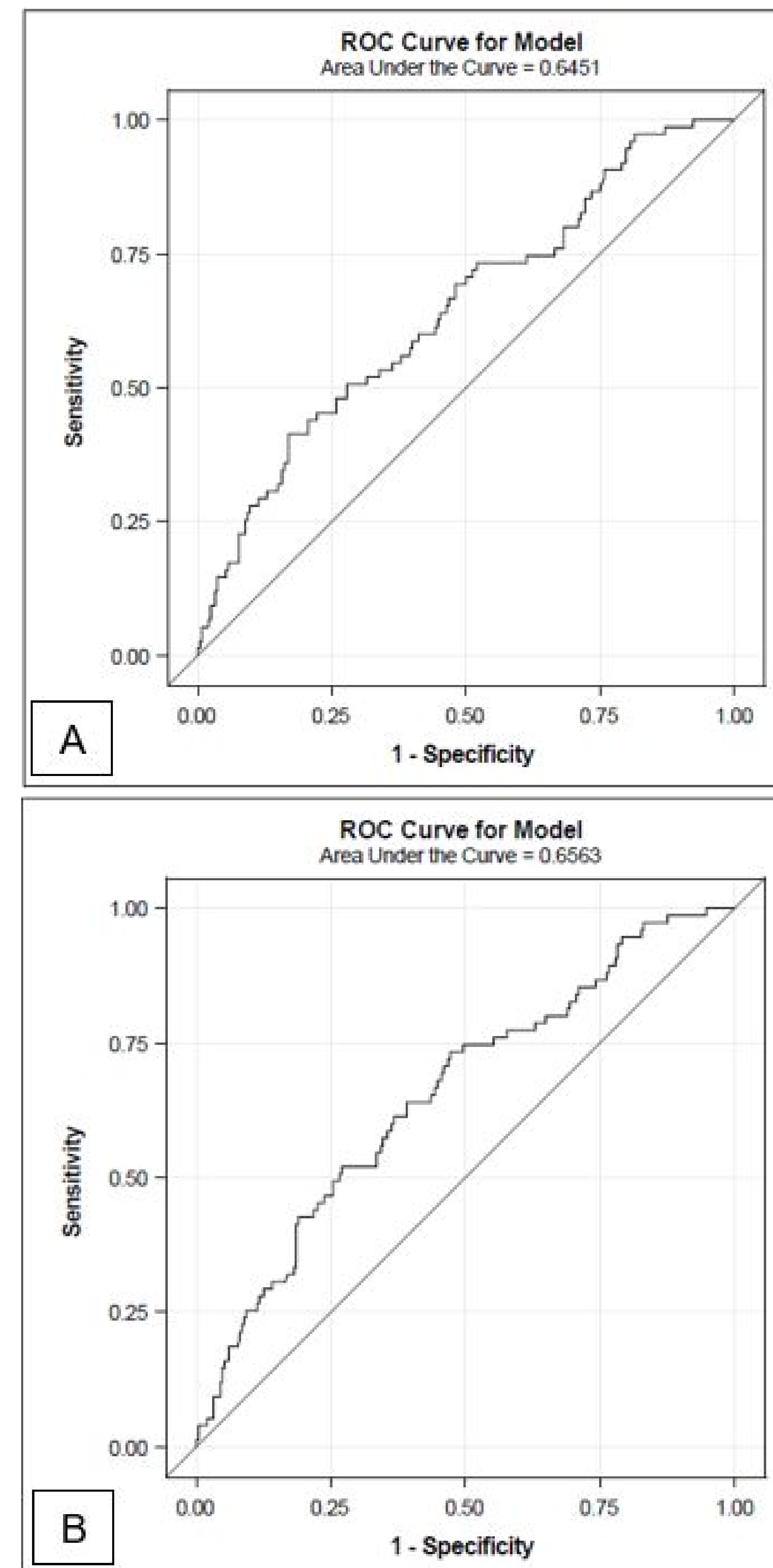
METHODS

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 (PFT) 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.

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



RESULTS (CONT.)

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 FVCP (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, FVCP 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 FVCP is a reliable marker even after adjusting for age, gender and diagnosis of IPF.

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