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| **Comparative analysis of FEV1 expressions: assessing the predictors of all-cause mortality.** |
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| **Introduction/Aim:** FEV1 z-score determines the severity of airflow obstruction, however other methods have been proposed and various ways for expressing FEV1 have also been used to predict mortality, including FEV1 quotient (FEV1Q). We compared six distinct approaches for expressing FEV1 in predicting all-cause mortality.  **Methods:** We retrospectively analysed data from a previous study, which included spirometry results measured between 2000 and 2002, age, sex, BMI, smoking history, death records, and time to death or loss to follow-up over a 20-year period. FEV1% predicted, FEV1 z-score, FEV1Ht-2, FEV1Ht-3, FEV1Ht-4, and FEV1Q were calculated using GLI reference values. We utilized both univariable and multivariable Cox models to evaluate hazard ratios (HR) for each quartile of various FEV1 expressions compared to the best quartile. Additionally, we assessed the predictive power for mortality of each FEV1 expression.  **Results:** Out of 796 individuals, 539 people died in the follow-up period and 257 were lost to follow-up. 60% were males. Compared to females, males were older (69±8 vs. 65±9 (mean±SD); p<0.001), had smoked more (46±35 vs. 26±29 pack years; p<0.001), and had a lower BMI (26.7±6 vs. 28.7±8 kg/m2; p<0.001). The mean (range) FEV1 was 1.35 L (0.35-3.74) for males and 1.10 L (0.28-3.00) for females. In the univariate model, FEV1H-4 exhibits the highest HR of 3.07 (95% CI: 2.39-3.94) when comparing the worst to the best quartiles. However, after adjusting for age, sex, BMI, and smoking, FEV1Q emerges with the highest HR of 2.45 (95% CI: 1.89-3.17) between the worst and best quartiles, followed by FEV1H-2 at 2.38 (95% CI: 1.84-3.08). In this adjusted model, FEV1Q demonstrates the strongest predictive power for mortality, with a concordance index of 0.697.    **Conclusion:** Among the various methods for expressing FEV1 in our analysis, FEV1Q is the strongest predictor of mortality, in keeping with previous studies. FEV1H-2 was the next best predictor.  **Key Words:** FEV1 z-score, FEV1% predicted, FEV1Q, spirometry, survival analysis. **Nomination for New Investigator Award:** No.  **Grant Support:** N/A |