

ATS 2023 Highlights

Respiratory Structure and Function Early Career Professionals



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Get to know members of the RSF Assembly

Is your research clinical, basic science or translational?

Clinical science.

Tell us about your research?

I am interested in many aspects of the pathophysiology of COPD and heart failure. My research is mainly focused on understanding the mechanisms of the exercise intolerance and the functional respiratory abnormalities prevalent in these patients. Also, I am interested in investigating the cardiorespiratory responses to different exercise modalities in these populations.

Where do you see yourself in 5 years?

Probably doing science 😊! As a final-year PhD student, in five years from now I hope to have significantly contributed to the understanding of the exercise responses in patients with COPD and HF and its importance as a diagnostic and prognostic assessment tool, as well as continuing to expand my connections and work with researchers abroad to improve my academic skills by applying clinical science to translational science.

What do you find is the major benefit of RSF Assembly Membership?

Certainly, the major benefit of being an ATS-RSF member is the exposure to the talented scientific community in my field. The RSF Assembly connects me with renowned researchers from all over the world, exchanging knowledge and experiences, helping me to improve my career as a scientist.



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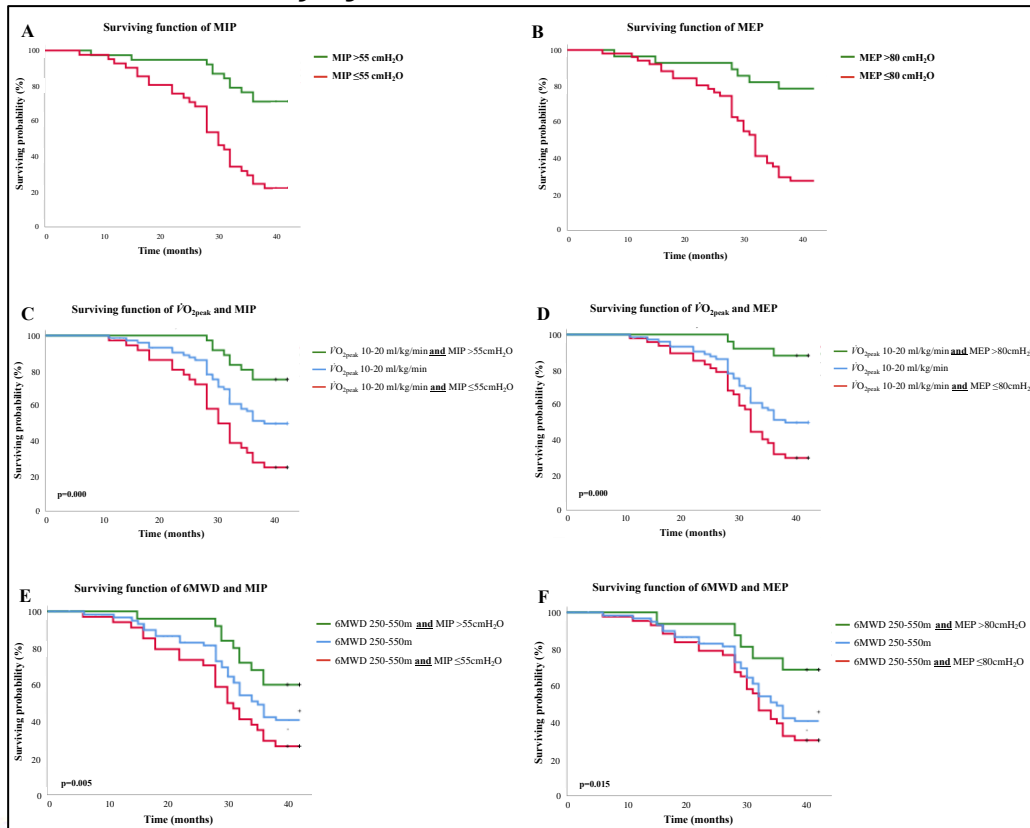
Does respiratory muscle strength substantially improve prognostic evaluation and risk stratification in moderate-to-very severe COPD? A 42-month follow-up analysis

Objective: To identify predictive values of inspiratory (MIP) and expiratory muscles strength (MEP) for mortality and its impacts in 42 months in patients with COPD, as well as to investigate the combination of these variables with other noninvasive established prognostic parameters to improve risk stratification.

Methods: Patients with COPD were recruited in this 42-month follow-up retrospective cohort study, and performed pulmonary function test, MIP and MEP assessments, six-minute walk test, and cardiopulmonary exercise test. ROC curve analysis identified the cut-off points for both MIP and MEP based on the sensitivity and specificity. Kaplan-Meier analysis assessed the probability of survival in 42 months in patients above and below the MIP and MEP cut-off points, as well as when combined to the peak oxygen uptake (VO_{2peak}) and the six-minute walking distance (6MWD).

Results: A total of 79 patients with COPD were included, and the sample was mostly composed by GOLD III (n=37) and IV (n=34). 43 (54%) patients died during the 42 months. The cut-off points of ≤ 55 for MIP (sensitivity= 60 and specificity= 58) and ≤ 80 cmH_2O for MEP (sensitivity= 86 and specificity= 61) were identified, and the Kaplan-Meier revealed MIP ≤ 55 and MEP ≤ 80 cmH_2O to be strongly associated with increased risk of death in COPD (log-rank $p=0.000$ for both MIP and MEP). MIP and MEP were also found to substantially improve the prognostic evaluation when combined with VO_{2peak} (log-rank: $p=0.000$ for both MIP and MEP) and 6MWD (log-rank: $p=0.005$ for MIP; $p=0.015$ for MEP).

Conclusion: Patients with COPD presenting MIP ≤ 55 and/or MEP ≤ 80 cmH_2O are more likely to die in 42 months. Furthermore, MIP and MEP substantially improve the prognostic evaluation when combined with VO_{2peak} and 6MWD, improving the risk stratification in terms of patients' eligibility criteria for urgent pharmacological optimization, pulmonary rehabilitation or even lung volume reduction surgery.



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