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The utility of 1-minute sit-to-stand test to detect exercise-induced oxygen desaturation in outpatient assessment of post COVID-19 patients.

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Abstract

Introduction: The 6-min walk test (6MWT) is the gold standard for assessing exercise-induced impairment of gas exchange, but it is technically challenging in a busy outpatient clinic. The aim of this study was to compare the 1-min sit-to-stand test (1STST) with the 6MWT in assessment of exercise-induced oxygen desaturation in post COVID-19 patients in an outpatient setting.

Methods: A total of 447 outpatient post COVID-19 patients were recruited from post COVID-19 clinic. Both 6MWT and 1STST (a set) were performed on the same day including pulse oxygen saturation (SpO2) recording at baseline, nadir, and recovery stage.

Results: A total of 447 sets were performed at a mean of 160 days post discharge. Majority were in category severe (n=251, 56%), critical (n=118, 26%) and moderate (n=6, 15%). At assessment, most patients were symptomatic (mMRC > 2) n= 258, 58%. There was no significant difference between nadir SpO2 for 6MWT and 1STST (p<0.075) with Bland-Altman plots showing good agreement, p<0.593 (figure 1). There was good correlation between SpO2 and 6MWT or 1STST at baseline; R=0.592 p<0.001, nadir; R=0.456 p<0.001, and recovery; R= 0.514 p<001. 1STST had 76.8% sensitivity and 42.4% specificity to detect > 4% oxygen desaturation compared with 6MWT (table 1). There was also correlation between 6MWT distance and 1STST repetition; R=0.144 p<0.002.

Conclusion: Both 6MWT and 1STS have good agreement on nadir SpO2 and are sensitive to detect > 4% oxygen desaturation. Therefore, 1STST is an useful screening test to detect exercise-induced oxygen desaturation during outpatient assessment.

Covid-19

Footnotes

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