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Opinion

Utility of the Incremental Shuttle Walk Test in Patients with Interstitial Lung Disease

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Abbreviations

ILD: Interstitial Lung Disease; ISWT: Incremental Shuttle Walk Test; CPET: Cardiopulmonary Exercise Testing; COPD: Chronic Obstructive Pulmonary Disease

Interstitial lung disease (ILD) is a diverse group of lung pathologies also referred to as a diffused parenchymal lung disorder. It is characterized by inflammation and fibrosis of varying degrees leading to thickening of the interstitium. These structural changes lead to physiological impairments in gaseous exchange, lung expansion and exercise capacity.

The incremental shuttle walk test (ISWT) is a simple and easily performed assessment of a subject's exercise capacity. In 1992, the ISWT was first described as a clinical tool to evaluate the exercise capacity of chronic obstructive pulmonary disease (COPD) patients. The ISWT is a standardized and incremental walk test and hence it can stress individuals to perform up to their symptom limited maximum. This is comparable to cardiopulmonary exercise testing (CPET), which is the current gold standard for assessing exercise capacity. Moreover, the ISWT is a field walk test that can be carried out in any clinical setup and does not require sophisticated equipment or expertise as those required in CPET. The ISWT is an externally paced test which gives it an advantage over other self-paced walk tests such as the 6-minute walk test.

ISWT requires a patient to walk on a 10-m course around two cones that are placed 9-m apart. The patient hears pre-recorded audio signals in the form of beep at 1-minute intervals. At the start, the pace of walking is slow and then increases incrementally with each beep. Walking continues until one or all of the following occur: either the patient or operator determines that the patient is unable to continue; or the SpO_2 falls to less than 80%.

The measurement properties such as reliability, validity and responsiveness of the ISWT have been reported in various populations such as asthma, cystic fibrosis, ILD, cardiovascular diseases, lung cancer, and mainly in patients with COPD. Studies also show that the distance covered in ISWT is strongly correlated with VO_2peak measured by CPET.

Following points do warrant consideration- the ISWT has a significant learning effect, and hence a practice walk is recommended. If supplemental oxygen is used, the mode of propelling oxygen needs to be standardized as pushing and pulling an oxygen device requires varying degrees of exertion.

We believe that the ISWT may prove to constitute an inexpensive and effective alternative for routine evaluation of exercise capacity in patients with ILD.

Conflict of Interest

No conflict of interest exists.

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