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EDITORIAL COMMENT

Do We Need Another Walking Test?*

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The history of exercise as a clinical tool to induce symptoms and to assess the physiological and hemodynamic response to stress is <100 years, and originated with the report by Feil and Siegal (1) of patients who performed sit-ups to induce myocardial ischemia in 1928 (1). Since that time, various exercise modes, as well as protocols using maximal and submaximal exercise intensities, have been reported (1). Maximal graded exercise testing (e.g., the Bruce protocol) provides both diagnostic and prognostic data for patients with, or suspected of having, various pathologies. However, submaximal exercise testing is an attractive alternative for select patients because it is easier to perform, takes less time, costs less, and may be better tolerated by select patients.

By 1982, data on a 12-min submaximal walk test, which was based on the Cooper 12-min running test, had been building (2). However, Butland et al. (2) believed the 12-min test was "time consuming for the investigator and exhausting for the patient," and hypothesized that similar data could be obtained through a shorter test (2). They reported that walking tests of 2 and 6 min were both highly correlated with the 12-min walk test, and suggested the 6-min test as a "sensible compromise" (2). Today, the 6-min walk test (6MWT) may be the most common submaximal exercise test performed in medicine.

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The origin of the 6MWT is particular interesting because of the report from Harris et al. (3) in this issue of *JACC: Heart Failure*. In their study, Harris et al. (3) evaluated a 60-ft walk test (60ftWT) as a time-effective alternative for a broader range of patients with multiple comorbidities (e.g., arthritis, claudication) who otherwise could not or would not perform the 6MWT. They reported on 137 patients with ambulatory heart failure with reduced ejection fraction who performed the 60ftWT and the 6MWT as part of a prospective cohort study. Median time to complete the 60ftWT was 26 s (range 13 to 82 s) and was strongly correlated ($r = -0.75$) with the 6MWT distance. Among 126 patients who repeated both tests at 3 months, change in 60ftWT time was moderately correlated ($r = -0.45$) with a change in 6MWT distance. Finally, the 60ftWT time at baseline was significantly associated with a composite outcome of heart failure hospitalization or all-cause mortality. Together, these results are promising, but is another walking test needed?

Assessment of exercise tolerance (maximal and submaximal) is an important clinical and research tool. The 6MWT in particular continues to be used as a primary or secondary outcome in industry-sponsored clinical trials. There is a wealth of methodological studies that have been published on the 6MWT, assessing details such as the effect of patient instructions to walk as "fast" as possible versus as "far" as possible (4). Most these studies have focused on patients with pulmonary disease. Guidelines for the 6MWT have been published jointly by the European Respiratory Society and the American Thoracic Society (4).

Two major barriers to the implementation of the 6MWT are the walking duration and the length of the hallway. Patients are allowed to rest during the test. However, it remains unclear whether the same outcome is being assessed when comparing patients who need to stop to rest during the test with those who are able to walk continuously. This is especially important for patients with severely limited exercise tolerance and exercise limiting comorbidities (e.g., neuropathy, arthritis).

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According to guidelines (4), the hallway for a 6MWT should be 30 m (98 ft), plus space for the patient to walk around a marker on the floor located at each end of the course. Finding a straight and level hallway of this length that is relatively free of other pedestrian traffic is a challenge for many clinics. Hallway length is known to affect 6MWT distance (4). In addition, considering that the test administrator is not supposed to walk with the patient during the 6MWT, it can be difficult to communicate with a patient across a 30-m hallway. The 60ftWT proposed by Harris et al. (3) used a much more practical course of 15 ft that would facilitate communication with the patient and be easier for sites to identify a location with minimal pedestrian traffic.

Although it is premature for clinicians and investigators to broadly adopt the 60ftWT at this time, what might be needed for the 60ftWT to be considered an alternative to the 6MWT? First, data on the learning effect and test–retest reliability are needed. Current guidelines recommend performing 2 6MWTs at baseline when it is used to evaluate the effect of an intervention (3). Should the same recommendation be applied to the 60ftWT? Test–retest reliability is also important to understanding measurement error and minimal clinically meaningful differences. Second, baseline and follow-up data comparing the 60ftWT with the 6MWT in diverse patient groups, including both men and women, and across a range of exercise tolerances, disease severities, and exercise-limiting comorbidities is also needed. Finally, for the 60ftWT to be considered a surrogate or predictor of events (e.g., death), data from large cohorts are needed so that several confounders can be considered.

In summary, we commend Harris et al. (3) for this novel approach to the assessment of exercise tolerance. If supported by futures studies, the 60ftWT could address challenges clinicians and investigators have faced with other submaximal measures of exercise tolerance.

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