



Objective determination of the predefined duration of a constant-load diagnostic tests in arterial claudication

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OBJECTIVE: The predefined duration to arbitrarily stop the tests during constant-load treadmill exercise is a subject of debate and widely variable in the literature. We hypothesized that the upper and lower limits for predefined durations of constant-load 3.2 km/hour 10% grade tests could be derived from the distribution of walking distances observed on a treadmill in a population of subjects referred for claudication or from the optimal cutoff point distance on a treadmill to confirm a limitation self-reported by history. **METHODS:** We conducted a retrospective analysis using a referral center, institutional practice, and ambulatory patients. We studied 1290 patients (86% male), 62.1 +/- 11.2 years of age, 169 +/- 8 cm height, 75.7 +/- 14.2 kg weight. Patients performed a standard constant-load treadmill test: 3.2 km hour(-1), 10% slope, maximized to 1000 meters (approximately 20 minutes). We analyzed the maximal walking distance self-reported (MWD(SR)) by history and the maximal walking distance measured on the treadmill (MWD(TT)). Patients reporting MWD(SR) >or=1000 meters were considered unlimited by history. **RESULTS:** Only 197 patients (15.3%) completed the 20-minute treadmill test. Among the 504 patients who did not stop before 250 meters, 47.8% stopped within the next 250 meters (were unable to walk 500 meters). This proportion falls to 7.5% among the 213 patients who did not stop before 750 meters. When the final goal was to estimate whether the treadmill test can discriminate patients with or without limitation by history, area under the receiver operating characteristic (ROC) curve was 0.809 +/- 0.016 (95% confidence interval [CI], 0.778-0.841; P < .0001), the best diagnostic performance was attained for an MWD(TT) of 299 meters (approximately 6.15 minutes). **CONCLUSION:** In patients undergoing constant-load treadmill exercise with a protocol of 3.2 km hour(-1) and 10% slope: a predefined duration of 7 minutes could be proposed as a lower limit for the predefined duration of the tests specifically if one aims at confirming the limitation by history with treadmill testing. Owing to the low risk that patients that could walk 750 meters (approximately 15 minutes) will have to stop in the next 250 meters, 15 minutes seems a reasonable upper limit for the predefined test duration in clinical routine.

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