

Publication

The 6-min walk test in heart failure: is it a max or sub-maximum exercise test?

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The aim of the study is to compare the cardiorespiratory response during the 6-min walk test (6MWT) with a symptom-limited cardiopulmonary exercise test (CPET) in patients with varying degrees of heart failure. Thirty-seven patients with heart failure (New York Heart Association I-III) were asked to complete a 6MWT and a CPET on a cycle ergometer. Respiratory gases were measured during both the tests and patients were grouped into tertiles according to their $\text{VO}_2(\text{peak})$ reached during the CPET prior to performing statistical analysis of all other respiratory parameters. Patients were grouped into the following tertiles: Group 1 ($\text{VO}_2(\text{peak}) > 25.2$ ml/kg per min, $N = 13$), Group 2 ($\text{VO}_2(\text{peak}) > 17.5$ -25.2 ml/kg per min), and Group 3 ($\text{VO}_2(\text{peak}) \leq 17.5$ ml/kg per min). Despite the good overall correlation between 6MWT VO_2 and CPET $\text{VO}_2(\text{peak})$ ($r = 0.72$, $P < 0.001$), significant differences were seen within Groups 1 and 3 ($P < 0.05$). In Group 1, 6MWT VO_2 was significantly lower compared with CPET $\text{VO}_2(\text{peak})$, whereas Group 3 showed significantly higher 6MWT VO_2 compared with CPET $\text{VO}_2(\text{peak})$. In conclusion, the use of the 6MWT to evaluate exercise capacity in patients with heart failure is highly dependent on the degree of functional impairment. In patients with advanced heart failure, the 6MWT elicits a maximum exercise response, whereas it only constitutes a sub-maximal exercise test in patients with mild heart failure and no functional limitations. This must be taken into consideration when using the 6MWT in large epidemiological studies to evaluate therapy outcome and clinical prognosis in patients with varying degrees of clinical disabilities.

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