



Effect of Therapies on 6-Minute Walk Distance in Heart Failure with Reduced Ejection Fraction: A Systematic Review and Meta-analysis

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Introduction

6-minute walk distance (6MWD) is a simple tool to measure exercise capacity in patients with heart failure with reduced ejection fraction (HFrEF), and has prognostic value in regards to mortality and hospital admissions

Hypothesis

We performed this systematic review and meta-analysis to evaluate the effect of various heart failure therapies on improvement in 6MWD in patients with HFrEF

Methods

- A systematic search of MEDLINE and EMBASE was conducted for randomized placebo-control trials measuring 6MWD at baseline and follow-up in at-least 50 patients with HFrEF across both arms
- The primary outcome was improvement in 6MWD at follow-up
- Meta-analysis was stratified in groups based on medical therapy, device-based therapy (cardiac resynchronization therapy and cardiac contractility modulation), autonomic modulation, and exercise
- Mean difference (MD) with 95% Confidence Interval (CI) were reported across multiple studies included in the meta-analysis

Summary of Improvement in 6MWD

Methods

Systematic Review



Meta Analysis



Patients with HFrEF



14 Randomized Controlled Trials



Medical Therapy



Device-Based Therapy



Autonomic Modulation



Exercise

Device-Based Therapy
MD: 20.01 m; 95% CI: 18.71, 21.31

Autonomic Modulation
MD: 76.64 m; 95% CI: 54.10, 99.19

Exercise
MD: 39.52 m; 95% CI: 19.68, 59.35

Cardiac Resynchronization Therapy
MD: 19.98 m; 95% CI: 18.68, 21.28

Medical Therapy
MD: 31.69 m; 95% CI: -6.52, 69.91

Device based therapy, Autonomic modulation, and Exercise training programs are associated with improvement in 6MWD in patients with HFrEF, an effect which was not apparent in the trials of Medical therapy

Results

- A total of 17 studies met the inclusion criteria for meta-analysis
- Statistical analysis showed significant improvement in 6MWD in meters (m) at follow-up for device-based therapy (MD: 20.01 m; 95% CI: 18.71, 21.31), autonomic modulation (MD: 76.64 m; 95% CI: 54.10, 99.19), and exercise group (MD: 39.52 m; 95% CI: 19.68, 59.35)
- Pooled analysis of medical therapy did not show statistically significant improvement in 6MWD at follow-up (MD: 31.69 m; 95% CI: -6.52, 69.91)
- A sub-group analysis comparing cardiac resynchronization therapy to control showed statistically significant improvement in 6MWD (MD: 19.98 m; 95% CI: 18.68, 21.28)

Disclosures

The Authors do not have relevant conflicts of interest to disclose