Aerobic exercise reduces depressive symptoms in patients with chronic heart failure

doi:10.1136/eb-2012-101036

QUESTION
Question: Does exercise training reduce depressive symptoms in patients with chronic heart failure compared with guideline-based usual care?

Patients: 2322 Stable patients with chronic heart failure participating in the Heart Failure—A Controlled Trial Investigating Outcomes of Exercise Training (HF-ACTION) trial who completed the Beck Depression Inventory II (BDI-II) at baseline. Possible BDI-II scores range from 0 to 63; scores of ≥14 were considered clinically significant depressive symptoms. Among participants, BDI-II scores ranged from 0 to 59 (median 8), and 28% had clinically significant depressive symptoms.

Setting: 82 Medical centres in the USA, Canada and France; April 2003 to February 2007.

Intervention: Aerobic exercise versus usual care alone. Participants randomised to aerobic exercise were provided with a treadmill or exercise bicycle and received three supervised exercise sessions per week for 3 months (90 min/week), transitioning to home-based unsupervised exercise (goal 120 min/week) for the next 9 months. Usual care participants were not given a formal exercise prescription. All participants received self-management educational materials and regular follow-up phone calls.

Outcomes: Change in depressive symptoms after 3 months (primary outcome, end of the supervised exercise period), and after 12 months (secondary outcome); all-cause mortality, hospitalisation or both (primary medical outcomes); cardiovascular and heart failure hospitalisations and mortality (secondary medical outcomes).

Patient follow-up: 99.6% Included in primary analyses.

METHODS
Design: Randomised controlled trial.
Allocation: Concealed.
Blinding: Single blind for clinical events (assessor-blinded).
Follow-up period: Median 30 months.

MAIN RESULTS
After 3 and 12 months, aerobic exercise significantly reduced depressive symptoms compared with usual care alone (adjusted mean BDI-II score at 3 months: 8.95 with exercise vs 9.70 with usual care, p=0.002; at 12 months: 8.86 with exercise vs 9.54 with usual care group, p=0.01). Among the subgroup of patients with clinically significant depressive symptoms, aerobic exercise also significantly reduced depressive symptoms compared with usual care alone at both timepoints (mean BDI-II score at 3 months: 16.66 with exercise vs 17.98 with usual care, p=0.04; at 12 months: 15.85 with exercise vs 17.34 with usual care, p=0.02). When compared to usual care, aerobic exercise was associated with a lower risk of all-cause death or hospitalisation (HR 0.89, 95% CI 0.81 to 0.99, p=0.05), and a lower risk of heart failure hospitalisations and deaths (HR 0.85, 95% CI 0.75 to 0.92, p=0.05). There was no significant effect of aerobic exercise on cardiovascular hospitalisations and deaths (HR 0.91, 95% CI 0.81 to 1.01, p=0.09). Higher baseline BDI-II was associated with an increased risk of clinical events (HR for an event in participants with BDI-II score ≥14 vs participants with a score of 4: 1.16, 95% CI 1.05 to 1.29, p=0.01). After adjustment for covariates, there was a significant association between change in BDI-II score and risk of all cause death or hospitalisation, with improvement linked to reduced risk of an event (p=0.02).

CONCLUSIONS
Aerobic exercise produces a small reduction in depressive symptoms in patients with heart failure compared to usual care alone.

NOTES
Only 40% of patients in the aerobic exercise group were fully adherent to the exercise programme.

ABSTRACTED FROM

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Sources of funding: The US National Heart, Lung and Blood Institute.

Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/eb-2012-101036).

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Competing interests None.

REFERENCES