A pilot randomized controlled trial to evaluate the benefit of the cardiac rehabilitation paradigm for the non-acute ischaemic stroke population

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Received 22nd December 2006; returned for revisions 25th February 2007; revised manuscript accepted 18th April 2007.

Objective: To evaluate risk factor reduction and health-related quality of life following a 10-week cardiac rehabilitation programme in non-acute ischaemic stroke subjects.

Design: Single-blinded randomized control trial.

Setting: Outpatient rehabilitation.

Subjects: Forty-eight community-dwelling ischaemic stroke patients (38 independently mobile, 9 requiring assistance, 1 non-ambulatory) were randomly assigned to intervention or control groups by concealed allocation.

Intervention: The trial consisted of a 10-week schedule with measures taken at weeks 1 and 10. Both groups continued usual care (excluding aerobic exercise); intervention subjects attended 16 cycle ergometry sessions of aerobic-training intensity and two stress-management classes.

Main outcome measures: Cardiac risk score (CRS); VO₂ (mL O₂/kg per minute) and Borg Rate of Perceived Exertion (RPE) assessed during a standardized ergometry test; Hospital Anxiety and Depression Scale (HADS); Frenchay Activity Index; Fasting Lipid Profiles and Resting Blood Pressure.

Results: Group comparison with independent t-tests showed significantly greater improvement at follow-up by intervention subjects than controls in VO₂ (intervention 10.6 ± 1.6 to 12.0 ± 2.2, control 11.1 ± 1.8 to 11.1 ± 1.9 t = -4.734, P < 0.001) and CRS (intervention 13.4 ± 10.1 to 12.4 ± 10.5, control 9.4 ± 6.7 to 15.0 ± 6.1 t = -2.537, P < 0.05). RPE rating decreased in intervention subjects (13.4 ± 12.2 to 12.4 ± 2.0) and increased in controls (13.9 ± 1.8 to 14.4 ± 1.6); Mann–Whitney U (U = 173.5, P < 0.05).

Within-group comparison showed significant decrease in the HADS depression subscale in the intervention group alone (5.1 ± 3.4 to 3.0 ± 2.8) (Wilcoxon signed ranks test Z = -3.278, P < 0.001).

Conclusion: Preliminary findings suggest non-acute ischaemic stroke patients can improve their cardiovascular fitness and reduce their CRS with a cardiac rehabilitation programme. The intervention was associated with improvement in self-reported depression.

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10.1177/0269215507081580