**EXERCISE RESPONSE AFTER CARDIAC TRANSPLANTATION**

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Objective: To investigate the relation between sympathetic efferent reinnervation and chronotropic competence during exercise testing after cardiac transplantation.

Patients: Twenty five long-term cardiac transplant recipients and 11 normal controls. Setting: Regional cardiothoracic centre.

Methods: Intracoronary tyramine was given to the transplant recipients and the per cent heart rate change measured. Exercise tests were performed in patients and controls according to the chronotropic assessment exercise protocol, and the per cent heart rate reserve measured at peak exercise and 6 min afterwards to estimate the recovery rate. Results: The mean (SD) percentage heart rate change after intracoronary tyramine was 15.7 (15.4). Heart rate reserve achieved at peak exercise was 68.3 (20.6)% compared with 102.7 (9.3)% in the controls (P < 0.001). Heart rate recovery at 6 min was 41.7 (20.1)% compared with 79.5 (9.0)% in the controls (P < 0.001). Total workload was 69.0 (33.0) METS.min compared with 117.2 (41.9) METS.min in the controls (P < 0.01). There was a positive correlation between heart rate reserve achieved at peak exercise and response to tyramine (r = 0.66, P < 0.01), between heart rate recovery and response to tyramine (r = 0.69, P < 0.001), and between total workload and response to tyramine

(r = 0.63, P = 0.04).

Conclusion: Functional sympathetic efferent reinnervation of the sinus node occurred in some patients after transplantation, and was associated with improved heart rate response during and recovery after exercise, as well as with increased total workload