

GLOSSARY

RACE

Rate Control versus
Electrical Cardioversion

Can stem-cell transplantation improve cardiac function in ischemic cardiomyopathy?

Congestive heart failure (CHF) is an important global health problem. This condition arises from myocardial dysfunction and prevents the heart from circulating sufficient blood to sustain the metabolic requirements of the body. Patel and co-workers hypothesized that autologous stem-cell transplantation to ischemic regions of the heart could regenerate cardiac myocytes and stimulate neovascularization, to restore myocardium viability and improve cardiac function, in patients undergoing off-pump coronary artery bypass grafting (OPCABG) for ischemic cardiomyopathy.

In this investigation, 20 patients with ischemic CHF requiring revascularization were prospectively randomized to undergo primary OPCABG with or without concurrent stem-cell transplantation (10 patients per group). Left ventricular ejection fraction measurements were similar in the two groups at baseline. Following surgery, patients in the stem-cell-transplantation group had higher ejection fractions than those in the non-stem-cell-transplantation group ($P < 0.01$ at each time point measured—1, 3 and 6 months).

Future studies are required to show how the cell type, harvest and implantation techniques affect the clinical success of transplantation. Whether differences arise between patients who undergo OPCABG and on-pump CABG, related to inflammatory responses to bypass, might also be useful to investigate. In this study, however, autologous stem-cell transplantation significantly improved cardiac function in CHF patients undergoing OPCABG.

Kate Matthews

Original article Patel AN *et al.* (2005) Surgical treatment for congestive heart failure with autologous adult stem cell transplantation: a prospective randomized study. *J Thorac Cardiovasc Surg* **130**: 1631–1638

Closure of interatrial communications is effective in patients with right-to-left shunt

Right-to-left shunt through an interatrial communication occurs when pressure in the right atrium is higher than that in the left; it can result in systemic embolism and systemic

desaturation. It occurs in conditions such as pulmonary hypertension and right ventricular dysfunction, and can increase risk of stroke and limit ability to carry out physical exercise. The standard treatment in adults is closure of interatrial communications. Agnoletti *et al.* studied the effectiveness of this procedure in young patients who had undergone biventricular repair for congenital heart disease.

In total, six patients underwent percutaneous atrial septal defect closure and nine patients underwent foramen ovale closure (median age 13 years). Mean oxygen saturation in the total group increased significantly immediately following the procedure ($P < 0.05$). In addition, the group's maximal work load and oxygen saturation, measured during exercise tests carried out a maximum of 3 months after the procedure, showed significant improvements (both $P < 0.001$). After a median of 3 years' follow-up, all patients remained asymptomatic with no recurrence of cerebral events, and all but one patient (who had a residual atrial septal defect) had normal oxygen saturation at rest and during exercise.

The authors conclude that closure of interatrial communications is effective, allowing restoration of normal oxygen saturation at rest, avoiding desaturation during exercise and improving work capacity. They encourage further studies investigating right ventricular compliance and evaluation of oxygen consumption.

Pippa Murdie

Original article Agnoletti G *et al.* (2005) Right to left shunt through interatrial septal defects in patients with congenital heart disease: results of interventional closure. *Heart* [doi: 10.1136/hrt.2005.071092]

Effective rhythm control for atrial fibrillation does not improve prognosis

The RACE study compared the long-term effects of rate and rhythm control in patients with persistent atrial fibrillation (AF), concluding that both strategies were equally effective regarding mortality and morbidity. Researchers in The Netherlands recently reported a subanalysis of this study, which tested the hypothesis that underlying cardiovascular disease determines risk rather than arrhythmia itself.

Patients in the rhythm-control group in whom sinus rhythm was maintained ($n = 49$)