RESEARCH HIGHLIGHTS

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GLOSSARY

NASCET

North American Symptomatic Trial Collaborators

ESCT

European Carotid Surgery Trial

cc

Common carotid

Acute myocardial infarction

TOPCARE-AMI

Transplantation of Progenitor Cells And Regeneration Enhancement in Acute Myocardial Infarction

BMC

Bone-marrow-derived progenitor cells

CPC

Circulating progenitor cells

LVEF

Left-ventricular ejection function

MRI

Magnetic resonance imaging

nonSTEMI. It is unclear whether these findings will apply outside the study, where early and aggressive use of PCI may be less common.

Original article Mueller C *et al.* (2004) Prognostic value of the admission electrocardiogram in patients with unstable angina/non-ST-segment elevation myocardial infarction treated with very early revascularization. *Am J Med* **117:** 145–150

Measurement of carotid stenosis

Established techniques for measuring the severity of internal carotid artery (ICA) stenosis include the NASCET, ESCT and CC methods. Of these, only NASCET has been validated for use with contrast-enhanced magnetic resonance angiography (CEMRA), which is fast replacing intra-arterial digital subtraction angiography (DSA) as the modality of choice. U-King-Im *et al.* have compared the diagnostic performance and reproducibility of the NASCET, ESCT and CC methods on CEMRA, using DSA as the reference standard.

Symptomatic patients with suspected ICA stenosis (n = 142) underwent DSA and CEMRA, providing 284 arteries for analysis. All angiograms were reviewed independently by three experienced neuroradiologists and the maximum stenosis was calculated using the NASCET, ECST and CC methods. Stenosis was then classified as mild, moderate, severe or complete occlusion.

Intermodality correlation and agreement were similar for the three methods. For the identification of DSA-defined severe stenosis on CEMRA, there were no significant differences between the three measurement methods for specificity, positive predictive values or negative predictive values. Sensitivity, however, was significantly lower using ESCT (78.9%) than with NASCET (93.0%) or CC (87.7%).

The authors conclude that all three methods are adequate for use with DSA but that NASCET is the most appropriate measurement method when using CEMRA. They recommend that other non-invasive methods should also be validated according to the measurement method.

Original article U-King-Im JMKS *et al.* (2004) Measuring carotid stenosis on contrast-enhanced magnetic resonance angiography. *Stroke* **35:** 2083–2088

Cell transplantation therapy in acute MI

Therapy with adult progenitor cells has resulted in improved cardiac function after AMI in animal models. The TOPCARE-AMI trial was a pilot study investigating the safety and feasibility of this approach in humans, and providing information for the design of double-blind controlled trials. The final results of the study have recently been published.

Patients with acute ST-segment elevation MI (STEMI) undergoing acute reperfusion treatment were randomized to intracoronary infusion of either BMC (n=29) or CPC (n=30) within 7 days of AMI. BMC were isolated from bone-marrow aspirates from each patient on the day of cell transplantation, whereas CPC were cultured from venous blood samples collected immediately after randomization (24 h after AMI). In each case, cell suspensions were infused into the infarct artery via an overthe-wire balloon catheter and blood flow was blocked at intervals to allow adhesion and transmigration of the cells.

LVEF increased significantly from $50\pm10\%$ at baseline to $58.3\pm10\%$ at 4 months, and LV end-systolic volume was significantly reduced. At 1 year, MRI investigation revealed a sustained improvement in global EF, reduced infarct size and lack of reactive hypertrophy, indicating a favorable LV remodeling process. There were no differences between the groups of patients. The incidence of death or re-infarction was 3.4% and there was no evidence of myocardial ischemic damage or enhanced restenosis.

The authors conclude that transplantation of BMC or CPC is safe, feasible and deserves investigation in randomized trials.

Original article Schächinger V *et al.* (2004) Transplantation of progenitor cells and regeneration enhancement in acute myocardial infarction. *JACC* **44**: [http://www.cardiosource. com/library/journals/journal/article/fulltext?acronym=JAC &uid=PIIS0735109704016298&kwhighligh=] (accessed 24 September 2004)

Neurocognitive risks of CABG

Long-term neurocognitive deficit, defined as a combined loss of memory, learning, concentration and visual motor response, has been recognized as an adverse effect of surgery. Zimpfer *et al.* have prospectively measured the extent of