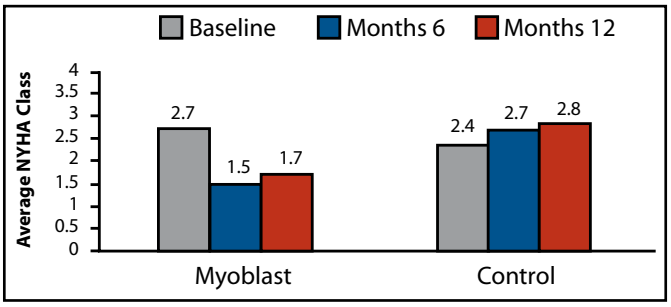
Figure 1. Average NYHA Class at 6 and 12 Months.



"Myocardial regeneration may play an important role in the treatment of heart attack and heart failure," Dr. Dib said. Indeed, data from the CAuSMIC trial provide promising evidence to support the use of ASM transplantation in patients with MI-related heart muscle injury, he concluded. The US Food & Drug Administration has approved a phase 2, randomized, placebo-controlled trial in 165 patients to determine whether these findings can be replicated, Dr. Dib added.

Bone Marrow Stem Cells Improve Ejection Fraction

A second randomized trial demonstrated that IC injections of bone-marrow-derived cells (BMCs) improved left ventricular ejection fraction (LVEF) among patients with ST-elevation MI (STEMI) treated with thrombolytic therapy followed by PCI.

Based in Finland, the double-blind, placebo-controlled FINCELL trial enrolled 78 patients with acute STEMI. Patients were randomly assigned to treatment with IC injections of autologous BMCs or IC injections of placebo. Injections were administered 2-6 days after the index MI, immediately after implantation of paclitaxel-eluting stents.

At 6 months, patients in the BMC group had a significant increase in their global ejection fraction (EF) measured by angiography (from 58.8% to 65.9%; p=0.002), compared with no change in EF in the placebo group. Two-dimensional echocardiography also detected differences in LVEF—an increase of 4.0% in the BMC group and a decrease of 1.4% in placebo group (p=0.03).

No differences were observed in arrhythmia risk variables, including measures of heart rate variability, signal-averaged electrocardiogram, and prevalence of positive T-wave alternans tests. In addition, no differences in risk for restenosis, as measured by minimal lumen diameter and area of the stented lesion, were noted in the two treatment groups.

"Intracoronary BMC therapy is safe and has neutral effects on arrhythmia risk factors and restenosis of the stented target vessel," lead study author Heikki Huikuri, MD, University of Oulu Hospital, Oulu, Finland, concluded.

Bone Marrow Stem Cells Do Not Improve Contractility

Another study of BMCs failed to show improvements in heart contractility following implantation, regardless of whether BMCs were delivered directly to the heart via intramuscular (IM) or IC injection. Findings of the IC/IM-BMC trial were presented by Keng-Leong Ang, MRCS, University of Leicester, United Kingdom.

A total of 62 patients scheduled to undergo elective coronary artery bypass grafting (CABG) were randomly assigned to one of three treatment groups: IC injection of BMCs (n=21), IM injection of BMCs (n=21), or no injection (n=20). The trial was designed to determine whether BMC treatment could improve the contractility of scarred heart tissue and to find which infusion method worked best.

Researchers found no differences in postoperative parameters of heart contractility among the three treatment groups. At 6 months, patients in all groups had similar parameters of wall motion assessment, systolic fractional thickening, end-diastolic volume, and end-systolic volume.

Although IM and IC administration of BMCs into scarred myocardium was safe, this technique did not improve systolic function of injected areas, did not reduce infarct size, and did not influence global LV function, Prof. Ang concluded.

STITCH: Simplified Treatment Algorithm Leads to Improved Blood Pressure Control

Compared with current hypertension management approaches, a straightforward algorithm featuring fixed-dose combination therapy leads to superior blood pressure (BP) control, according to findings of a new randomized trial.

Several influences – failure to meet BP targets, inadequate patient counseling and follow-up, and increasingly complex hypertension treatment algorithms – have led to "therapeutic inertia" in hypertension control among healthcare providers, said Ross D. Feldman, MD, Robarts Research Institute, London, Ontario, Canada. The Simplified Treatment Intervention to Control

Hypertension (STITCH) trial evaluated an algorithm designed for use in the family practice setting to combat the growing "epidemic" of nonadherence to guideline-based antihypertensive regimens.

The STITCH trial included 45 practices treating 2,104 patients in southwestern Ontario, Canada. Practices were randomly assigned to implement the Canadian Hypertension Education Program (CHEP) (n=27) or STITCH (n=18) treatment algorithm for the management of hypertension. The STITCH algorithm featured four steps:

- Initiate treatment with one-half tablet of the lowest dose of a fixed-dose combination
  - Angiotensin-converting enzyme-inhibitor (ACE-I)/diuretic or angiotensin-receptor blocker (ARB)/diuretic
- Increase the combination dose
  - Instruct patients to take the full tablet, then up-titrate to higher fixed doses
- Add a calcium channel blocker
- Add an alpha-blocker, beta-blocker, or spironolactone

The primary endpoint was the proportion of patients who were treated to target BP levels: <140/90 mm Hg and <130/80 mm Hg for patients with and without diabetes, respectively. At 6 months, significantly more patients in the STITCH group (64.8%) than in the CHEP group (52.7%) achieved BP targets (p=0.026). This represents an absolute benefit of 12% in favor of the STITCH algorithm (95% CI, 1.5-22.4%).

Systolic and diastolic BP levels improved in both groups, though the improvement was significantly greater among patients treated according to the STITCH practices. In the STITCH and CHEP groups, systolic BP dropped by 23 mm Hg and 18 mm Hg, respectively (p=0.002), whereas diastolic BP fell by 10 mm Hg and 8 mm Hg, respectively (p=0.03).

In practices assigned to the STITCH protocol, physicians were able to implement fixed-dose combination therapy in the majority (85%) of patients. By comparison, only 15% of patients in the CHEP group were treated with fixed-dose combination therapy (p<0.001).

"This simplified approach, which can be taught and used in busy family practices, resulted in better blood pressure control with less overall drug use," Prof. Feldman concluded. "The STITCH protocol may be a paradigm for the management of a range of chronic diseases that show poor control rates."

Rosuvastatin Offers No Significant Benefit for Older Patients with Heart Failure

Rosuvastatin was found to have no significant benefit in the prevention of cardiovascular (CV) death, myocardial infarction (MI), or stroke in symptomatic older patients with systolic heart failure (HF) of ischemic etiology in the Controlled Rosuvastatin Multinational (CORONA) trial. However, statin therapy was associated with significantly fewer hospitalizations and significantly decreased levels of low-density lipoprotein (LDL) compared with placebo.

Assuming that rosuvastatin reduced the risk of acute atherothrombotic events, our results suggest that the major etiology of CV deaths in these older patients with advanced systolic HF may be a primary electrical event related to ventricular dilatation and scarring and not to an atherothrombotic event, said Åke Hjalmarson, MD, PhD, Göteborg University, Sweden, who reported on the study.

CORONA enrolled 5,011 patients (24% women) with systolic HF of ischemic etiology. The mean age was 73 years. All patients were receiving optimal HF therapy. After a placebo run-in phase of 2-4 weeks, patients were randomly assigned to a daily dose of 10 mg of rosuvastatin (2,514 patients) or to placebo (2,497 patients). The median follow-up was 2.7 years.

Baseline mean LDL levels decreased from 137 mg/dL to 76 mg/dL after 3 months of treatment with rosuvastatin but did not change significantly in the placebo group (136 -> 138 mg/dL). Rosuvastatin also had a significant effect on the level of high-sensitivity C-reactive protein; the level decreased from 3.1 mg/L to 2.1 mg/L after 3 months of treatment; this 32% decrease compared with a 5% increase in the placebo group (from 3.0 mg/L at baseline to 3.3 mg/L at 3 months; p<0.001).

Dr. Hjalmerson reported that the incidence of the primary endpoint, a composite of CV death, nonfatal MI, or nonfatal stroke did not differ significantly between the two groups (27.5% for rosuvastatin vs 29.3% for placebo, p=0.12) (Figure 1). He noted, "The study was powered to detect a mean relative risk reduction of 16%, but the reduction associated with rosuvastatin was only 8%."