Late Breaking Science: Linking Genes to Function in the Heart and Vasculature

CLINICAL ABSTRACTS

Results of the Treat Angina With Aggrastat and Determine the Cost of Therapy With an Invasive or Conservative Strategy (TACTICS-TIMI 18) Trial: A Comparison of Invasive Versus Conservative Strategy in Patients With Unstable Angina and Non-ST-Segment Elevation Myocardial Infarction

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Background: In the treatment of patients with unstable angina and non-ST-segment elevation myocardial infarction (UA/NSTEMI), debate exists as to whether an early invasive vs. a conservative strategy is optimal therapy. Methods: In the international TACTICS-TIMI 18 trial, 22220 patients with UA/NSTEMI who had either electrocardiographic changes, elevated cardiac markers or a history of prior coronary artery disease, were immediately treated with aspirin, heparin and the glycoprotein (GP) IIb/IIIa inhibitor tirofiban. They were randomized to an early invasive strategy with routine catheterization and revascularization as appropriate for up to 4–48 hours, or to a conservative, “selective invasive” strategy, with catheterization performed only if the patient had objective evidence of recurrent ischemia or a positive stress test. The primary endpoint was a composite of death, myocardial infarction or rehospitalization for acute coronary syndromes at 6 months. Results: The rate of the primary endpoint was significantly reduced with the invasive strategy compared to the conservative strategy, 15.9% vs. 19.4%, odds ratio (OR) 0.78, p=0.025. The rate of death or MI at 6 months was also significantly reduced (9.5% vs. 7.3%, respectively, OR 0.74; p<0.001). Conclusion: In patients with UA/NSTEMI treated with the GP IIb/IIIa inhibitor tirofiban, an early invasive strategy resulted in a significant reduction in major cardiac events. These data suggest a need to update the ACC/AHA Unstable angina guidelines, and to modify the clinical approach to managing unstable angina with broader use of an early invasive strategy with upstream GP IIb/IIIa inhibition.

Effect of the Angiotensin Receptor Blocker Valsartan on Mortality and Morbidity in Heart Failure: the Valsartan Heart Failure Trial (Val-HeFT)

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In order to assess the efficacy of the angiotensin receptor blocker valsartan in the treatment of heart failure (HF), 5010 patients were studied in 16 countries on 4 continents. Patients with chronic HF (NYHA II-IV), or chronic HF (NYHA II) and LV dysfunction, or patients with early decompensation were enrolled. Treatment was initiated 24 to 96 hours after hospitalization and continued for 16 weeks. The primary endpoint was death, non-fatal myocardial infarction, or hospitalization for HF. Event rates were assessed for 6 months and for the entire study period of 16 weeks. Results: The rate of the primary endpoint was significantly reduced by valsartan: death (1.9% vs. 2.6% for placebo, p=0.007), non-fatal myocardial infarction (0.3% vs. 1.1%, p=0.001), and hospitalization for HF (7.8% vs. 10.5%, p=0.005).Conclusion: Treatment with valsartan in patients with NYHA II–IV chronic HF resulted in significant reductions in the rate of death, non-fatal myocardial infarction, and hospitalization for HF.

The Department of Veterans Affairs Aneurysm Detection and Management (ADAM) Study

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Aortic aneurysm is the 13th leading cause of death in the US, and most of these deaths are due to rupture or elective repair of abdominal aortic aneurysm (AAA). Because AAA diameter is the strongest known predictor of AAA rupture, a principal question in AAA management is the timing of elective repair of AAA. Immediate open surgical AAA repair vs. imaging surveillance with elective repair are the two major strategies for managing small AAA. This study measured the risk of rupture or elective repair of AAA in the Surveillance and the Surgery Group.

Patient with the smallest AAA at entry (4.0–4.4 cm, RR 1.43, 95% CI: 0.89 to 2.29, p=0.14), although the operative mortality in the Surgery subgroup was only 0.7%. This observation is consistent with a previous VA Cooperative Study finding that late survival may be reduced after major peripheral vascular surgery. Nine Surveillance patients (0.5% per year at risk) had AAA rupture, of which two were incidental findings at elective repair and five resulted in death. In the Surgery group, one patient who delayed elective repair had non-fatal AAA rupture, and another died of thoracic aortic aneurysm rupture after AAA repair. In addition to 30-day post-operative deaths and known rupture deaths, there were 25 sudden deaths in the Surveillance group and 23 in the Surgery group. We conclude that long-term survival is not improved by repair of AAA smaller than 5.5 cm even when operative mortality is very low, that deferring repair until the AAA has enlarged to 5.5 cm does not increase operative mortality, and that rupture is rare in this population.

Fluvastatin in Acute Myocardial Infarction: Effects on Early and Late Ischemia and Events: the FLORIDA Trial

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In post-myocardial infarction (MI) patients, residual ischemia is related to an adverse cardiac outcome. Thus, early initiation of statin treatment may be particularly beneficial after MI. The “Fluvastatin On Risk Diminishing after Acute myocardial infarction” (FLORIDA) trial is a prospective, placebo-controlled multicenter trial, designed to study the effect of Fluvastatin 80 mg per day post-MI ischemia during ambulatory ECG monitoring after MI and major adverse cardiac events (MACE). Included were 540 patients (83% male, age 61±11 yrs) with an acute myocardial infarction (43% anterior) and a cholesterol value <6.5 mmol/L (mean 5.4±1.0). AECGs were performed during admission for MI, after 6 weeks and 12 months. Fluvastatin 80 mg/day or placebo were administered during admission and for one year. Events were adjudicated by a blinded mortality committee. After 12 months treatment, fluvastatin lowered LDL cholesterol from 3.5 to 2.7 mmol/L and placebo from 3.6 to 3.9 mmol/L (p=0.001). At baseline, 6 weeks and 12 months ischemia on AECG was present in 12%, 8% and 6% of the patients on fluvastatin and in 13%, 6% and 10% of the patients on placebo (p=0.3). On fluvastatin the ischemic burden (ISEM) was 1.9±4.5 and 2±1 mm/min in the placebo group 16±6.5±3±3 and 3±1 mm/min (p=0.39). At 12 months, MACE and residual AECG ischemia occurred in 30% of fluvastatin patients and in 36% of placebo patients (p=0.98). This study showed no effect of fluvastatin on MACE. A positive trend though, was observed in patients with severe ischemia at baseline.

The Myocardial Ischemia Reduction with Aggressive Cholesterol Lowering (MIRACL) Trial: Effects of Intensive Atorvastatin Treatment on Early Recurrent Events After an Acute Coronary Syndrome

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Background: Previous trials have demonstrated that treatment with conventional doses of statins, initiated in patients with stable coronary heart disease, reduces death and non-fatal ischemic events over periods of years. The Myocardial Ischemia Reduction with Aggressive Cholesterol Lowering (MIRACL) trial tested the hypothesis that intensive treatment with atorvastatin, initiated immediately after an acute coronary syndrome, reduces death and non-fatal ischemic events in the ensuing 16 weeks. Methods: We conducted a randomized, double-blind trial comparing atorvastatin (80 mg daily) with placebo in 3086 patients with unstable angina or non-Q-wave acute myocardial infarction. Treatment was initiated 24 to 96 hours after hospitalization and continued for 16 weeks. The primary combined endpoint was death, non-fatal acute myocardial infarction, cardiac arrest with resuscitation, or worsening angina with new objective evidence of ischemia requiring emergency rehospitalization, analyzed by time to first event. Secondary endpoints included the components of the primary endpoint as well as stroke, coronary revascularization, worsening congestive heart failure, and worsening angina without new objective evidence of ischemia. Results: A primary endpoint event occurred in 228 patients in the atorvastatin group (14.8%) and 269 patients in the placebo group (17.4%) (relative risk 0.84; 95% confidence interval 0.70 to 1.00; P=0.048). The greatest effect of atorvastatin was on worsening angina with new objective evidence of ischemia requiring emergency rehospitalization (relative risk 0.74; 95% confidence interval 0.57 to 0.95; P=0.02). Death, non-fatal myocardial infarction, and cardiac arrest were less frequent in the atorvastatin group than in the placebo group, but the differences were not statistically significant.

Conclusion: Early, intensive lipid-lowering with atorvastatin reduces recurrent ischemic events in the first 16 weeks after an acute coronary syndrome.
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