

Articles relevant to the Focus on congenital heart disease

High-dose statins are safe and effective in patients with chronic kidney disease

Concerns about the potential toxic effects of high-dose statins in patients with renal dysfunction has meant that the use of statins in patients with chronic kidney disease (CKD) has been limited, despite this population having an elevated cardiovascular risk. By use of data from the TNT (Treating to New Targets) study, Shepherd *et al.* have now shown that intensive lipid-lowering treatment is both safe and effective in this high-risk population.

In the TNT study, 10,001 patients with coronary heart disease were randomized to receive atorvastatin at either 10 mg/day or 80 mg/day. The current subanalysis examined the outcomes of the 9,656 participants for whom complete renal data were available, 3,107 of whom had CKD at baseline. After a median follow-up of 5 years, 11.3% of patients with baseline CKD had experienced a first major cardiovascular event, compared with 8.6% of patients with normal kidney function at baseline (hazard ratio 1.35, 95% CI 1.18–1.54; $P < 0.0001$). Within the CKD group, the relative risk of a first event was 32% lower in patients treated with high-dose atorvastatin than among those who received the lower dose ($P = 0.0003$). For patients with normal kidney function at baseline, intensive lipid-lowering treatment reduced the relative risk of a first event by 15% ($P = 0.049$). Notably, the rates of treatment-related adverse events among patients with CKD and individuals with normal kidney function were similar. These results support the current guidelines, which recommend the use of intensive lipid-lowering strategies in populations at high risk of cardiovascular disease.

Original article Shepherd J *et al.* (2008) Intensive lipid lowering with atorvastatin in patients with coronary heart disease and chronic kidney disease: the TNT (Treating to New Targets) study. *J Am Coll Cardiol* 51: 1448–1454

Nonsurgical treatment of right ventricular outflow tract dysfunction

Right ventricular outflow tract dysfunction can be treated by replacement of the right ventricle-to-pulmonary artery conduit, yet the

lifespan of valved conduits are often < 10 years, which results in patients having to undergo multiple open heart operations. Lurz *et al.* have determined that percutaneous pulmonary valve implantation (PPVI) is a safe and effective nonsurgical treatment for pulmonary stenosis and regurgitation that delays the need for surgery in patients with dysfunction of the right ventricular outflow tract.

In all, 155 patients (median age 21.2 years, range 7–71 years) with pulmonary stenosis, pulmonary regurgitation, or both underwent PPVI at one of four hospitals during the period September 2000 to February 2007. After implantation, right ventricular systolic pressure decreased from a mean of 63 ± 18 mmHg to 45 ± 13 mmHg ($P < 0.001$), and right ventricular outflow tract gradient decreased from a mean of 37 ± 20 mmHg to 17 ± 10 mmHg ($P < 0.001$). Freedom from reoperation was $93.2 \pm 2\%$, $86 \pm 3\%$, $84 \pm 4\%$, and $70 \pm 13\%$ at 10, 30, 50, and 70 months, respectively. Freedom from transcatheter reintervention was $95 \pm 2\%$, $87 \pm 3\%$, $73 \pm 6\%$, and $73 \pm 6\%$ at 10, 30, 50, and 70 months, respectively. Survival at 83 months was 96.9% (median follow-up 28.4 months, range 0–83.7 months).

A marked learning curve could be identified, with patients who underwent PPVI late in the study having a longer freedom from reoperation than the first 50 patients who underwent the procedure. The authors attribute this trend to improvements in patient selection, procedural techniques and device alterations.

Original article Lurz P *et al.* (2008) Percutaneous pulmonary valve implantation: impact of evolving technology and learning curve on clinical outcome. *Circulation* 117: 1964–1972

Diabetic retinopathy is associated with incident heart failure

Microvascular disease is responsible for diabetic retinopathy and has been linked to diabetic cardiomyopathy, a major cause of heart failure (HF) in patients with diabetes mellitus. Cheung *et al.* have found that diabetic retinopathy is independently associated with the risk of incident HF in individuals with diabetes.

This population-based study examined patients aged 45–65 years who had diabetes and no evidence of coronary heart disease or