

weight patients, and in those with renal failure to avoid overdosing these patients who are at increased risk of bleeding. [Alexander. *JAMA* 2005;294:3108-16]. Lastly, Prof. Van De Werf reminded the audience that use of a proton pump inhibitor in patients with a history of gastrointestinal bleeding is now recommended by the updated nSTE-ACS guidelines [Anderson et al. *JACC* 2007].

## Advances in Cardiovascular Surgery Techniques

Cardiovascular surgery is becoming less invasive, more focused, and safer, according to speakers who presented new approaches to several traditional surgical procedures.

### *Hybrid Revascularization for Coronary Artery Disease*

Hybrid revascularization, which incorporates coronary artery bypass grafting (CABG) and percutaneous transluminal coronary angioplasty (PTCA) in one intervention, offers clinical and cosmetic advantages over CABG alone, said Johannes Bonatti, FETCS, Medical University of Innsbruck, Innsbruck, Austria. Cumulative data from recent studies revealed 0% perioperative mortality, 2% stenosis of the left internal mammary artery, and 12% restenosis of PTCA/stent lesions. One comparative study (de Canniere D et al. *AHJ* 2001;142:563-70) found multiple advantages for the hybrid procedure versus CABG for double-vessel disease, including faster return-to-work time (22 vs 89 days).

Endoscopic robotics further enhances hybrid revascularization. Based on 51 cases (Table 1), Dr. Bonatti has found that the robotic approach offers better overview inside the chest, and produces a longer graft and a smaller scar than a full sternotomy. "This operation best preserves the patient's integrity," he observed.

**Table 1. Hybrid Revascularization Innsbruck (Robotics) 2001-2007.**

Intention to treat n=51		
MIDCAB (LIMA endoscopically)	2	4 %
AH-TECAB (LIMA-LAD)	38	74 %
BH-TECAB (LIMA-LAD)	4	8 %
AH-TECAB (RIMA-LAD/LIMA-Cx)	4	8 %
AH-TECAB (LIMA-Dg/LAD jump)	3	6 %
Endoscopic surgery first	33	65 %
PCI first	4	8 %
Simultaneous intervention	14	27 %

\*Significant stenosis was defined as more than 50% stenosis.

### *Transapical Aortic Valve Replacement*

A new technique has been introduced for aortic valve replacement. In this case, the valve is replaced using a transapical approach.

The transapical procedure involves a minithoracotomy, balloon valvuloplasty, and implantation of an investigational prosthesis. The lack of mortality and stroke was striking in a population of 89 elderly high-risk patients. Survival was >90% at 30 days and no new strokes occurred. Sixty-eight patients (76.4%) were operated off-pump, and perioperative conversion was required in only 4 (4.5%). Thirty-day mortality was 9%, predominantly from underlying disease.

Noting these results, Dr. Walther commented, "It is important that the elderly patients not just survive, but survive without strokes."

### *Atrial Fibrillation Ablation*

Finally, concomitant ablation of atrial fibrillation (AF) in patients undergoing cardiovascular surgery was discussed by Patrick M. McCarthy, MD, Northwestern University, Chicago, IL. Underlying AF raises the mortality risk in patients undergoing any cardiac surgery. In a study by Dr. McCarthy and colleagues (Quader MA et al. *Ann Thorac Surg* 2004;77:1514-1524) survival was significantly compromised in patients with AF undergoing CABG: 23% at 15 years (CABG-related?), vs 46% for patients without AF.

Concomitant ablation is therefore desirable to improve survival and to spare AF patients from additional ablation procedures. The goal of epicardial AF surgery is to reproduce the results achieved with the classic Cox-Maze procedure, using a minimally invasive technique and no cardiopulmonary bypass. In this procedure, surgeons can ablate the AF, close the left atrial appendage and ablate the ganglionated plexi.

In five prospective randomized trials of permanent AF ablation during mitral valve surgery, normal sinus rhythm was restored in 44-94% and the treatment arm was significantly improved over controls (p<0.001), he noted. During mitral valve repair, Dr. McCarthy uses bipolar radiofrequency ablation and cryoablation. During aortic valve replacement, CABG, and aneurysm, he uses pulmonary vein isolation and closes the left atrial appendage. Cryoablation is used during re-do mitral valve repair.