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Aortocoronary bypass surgery and ascending aortic dissection: letter 2

Zile Singh Meharwal and Naresh Trehan

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dissection after CABG had severe atherosclerosis or cystic medial necrosis—in combination with hypertension in most instances—and were therefore especially at risk. Although we had no information about details of the initial operation, including the size and the quality of the aorta at that time, we speculated that the incidence of this complication might be higher in patients undergoing OPCAB, as has now been demonstrated by Chavanon and associates [1].

We concur with the technical suggestions of this group in Montreal and agree that careful handling of the aorta during CABG is essential to avoid iatrogenic dissection. Furthermore, we believe that the total number of iatrogenic dissections is probably generally underestimated because some of these dissections occur not during the primary operation or shortly thereafter but a few days or even weeks later: they begin with a superficial intimal tear [3], which is then aggravated by hypertension, atherosclerosis, and pathological flow conditions. These delayed dissections at typical surgical sites are usually not immediately apparent if there are no signs of malperfusion or pain; routine roentgenography or even transthoracic echocardiography does not always detect intimal tears. With the increasing average age of patients requiring CABG procedures, and the greater degree of comorbidity (eg, severe atherosclerosis), the incidence of this complication may continue to rise. It remains to be seen whether new surgical devices that allow the performance of proximal anastomoses without clamping the aorta will be useful even when severe calcification of the aorta is present. Until then, OPCAB procedures should be undertaken with caution in patients with any risk factors predisposing to the occurrence of dissection.

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Aortocoronary Bypass Surgery and Ascending Aortic Dissection: Letter 2

To the Editor:

The article by Chavanon and colleagues [1] in the January 2001 issue of *The Annals* is quite interesting and raises the important issue of iatrogenic aortic dissection. Off-pump coronary artery bypass grafting is being used by more and more surgeons all over the world, and although prospective, randomized trials are lacking, several authors have reported a decrease in mortality in certain high-risk groups including older age patients. The incidence of atherosclerosis in the aorta increases with age, and these are the patients in whom complications secondary to aortic

clamping might be expected to be high. Off-pump coronary artery bypass procedures do not use aortic cannulation and cross-clamping and thereby avoid injury to the aorta and dislodgment of any atheroma during bypass. However, there is certainly a risk of injury to the aortic wall during partial clamping of a tense aorta, especially if it is diseased.

Chavanon and associates did not attempt to reduce arterial pressure in the first 100 patients and then lowered the pressure to 100 mm Hg for the next 208 patients. They did not mention their technique for screening the aorta, ie, transesophageal echocardiography or epi-aortic scanning. Some of the patients who had dissection might have had major atherosclerosis of the aorta. Epi-aortic scanning is superior to transesophageal echocardiography in detecting atheroma in the ascending aorta and assessing target sites for surgical procedures involving the ascending aorta [2]. The high aortic pressure during application of the partial occlusion clamp will be a risk factor for injury to the aortic intima especially in the older patient and the patient with a diseased aorta. We reduce the pressure to 60 to 70 mm Hg while applying the clamp.

Between December 1996 and December 2000, we performed 2,560 OPCAB procedures. One intraoperative dissection of the aorta occurred. The ascending aorta was replaced with a prosthetic graft and the proximal anastomosis of the vein conduit was placed on the prosthesis. In patients in whom atheromatous disease in the aortic arch is shown by transesophageal echocardiography or in whom the aorta feels diseased on superficial palpation, we transiently clamp the venae cavae and reduce the pressure to low levels (50 to 60 mm Hg) to palpate the aorta. If there is any sign of substantial aortic atherosclerosis or calcification, we either avoid doing the proximal anastomosis on the aorta or apply a small pediatric partial occlusion clamp in an area of the aorta that feels normal. When the aorta is diffusely diseased, we perform Y grafts and sequential anastomoses. Recently we have started using epi-aortic scanning in more and more patients, especially those who either have atheromas detected by transesophageal echocardiography or have signs of atherosclerosis on palpation.

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Reply

To the Editor:

We thank Dr Hagl and Dr Griep for their comments on our recent report [1] concerning the incidence of ascending aortic dissection after off-pump coronary artery bypass grafting. They emphasize the risk associated with the use of a partial occlusion clamp in coronary revascularization as encountered in 60% of their patients with type A aortic dissection after such proce-

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