Letter to the Editor

Aorta non-clamp technique in case of sclerotic ascending aorta during coronary artery bypass grafting

Murat Ugurlucan a,*, Ozer Selimoglu b, Temucin Noyan Ogus c, Omer Isik b
a Duzce Ataturk State Hospital, Cardiovascular Surgery Clinic, Duzce, Turkey
b Goztepe Safak Hospital, Cardiovascular Surgery Clinic, Istanbul, Turkey
c JFK Hospital, Cardiovascular Surgery Clinic, Istanbul, Turkey

Received 2 February 2010; accepted 6 March 2010

Keywords: Ascending aorta; Coronary artery bypass grafting; Cross-clamp; Embolism; Fibrillation; Sclerosis

We read with great interest the manuscript by Antunes MJ in which the author presented an open-anastomosis technique for proximal vein graft anastomoses in case of sclerotic ascending aorta [1]. We present our comments on the paper from a few technical aspects.

A similar technique has already been published by our group in 2006 [2]. We routinely prefer fibrillation without intermittent cross-clamping in the presence of calcification at the ascending aorta. Cardiopulmonary bypass is instituted by cannulation of right atrium and aortic arch, axillary artery, femoral artery or disease-free segment of ascending aorta depending on the extent of the atherosclerotic aortic disease [2]. We always institute a vent to prevent myocardial distension and permit unloading. A left ventricular vent through the right superior pulmonary vein, a pulmonary arterial vent or, sometimes, both may be inserted. A pulmonary arterial vent is safer and does not require special care of the perfusionist against air embolism when compared with a left ventricular vent [3]. We start with the distal anastomoses to the easily accessible coronary arteries as the cooling is started. At 29–30 °C, the heart usually fibrillates spontaneously; however, the patient is cooled down to 28 °C. The mean arterial pressure is kept 65 mm Hg until all the distal anastomoses are completed [2,3]. Additionally, following each distal anastomosis, heart is defibrillated, by which, we believe the conduction tissue replenishes the energy stores. Moreover, this measure is helpful to prevent bundle or branch blocks which may occur in the postoperative period [3]. Necessarily, consecutive anastomoses are performed with consequent fibrillation and defibrillation periods [2,3]. Before anastomosing the internal thoracic artery to the left anterior descending artery, we perform the proximal anastomoses. Proximal anastomoses are performed to the clean segments of the ascending aorta [1–3] if available on low flow with mean arterial pressure of 20–25 mm Hg, otherwise to the innominate or the internal thoracic artery [2,3]. We place ice bags around the head of the patient and the table is tilted to place the patient in the Trendelenburg position during low flow. Each proximal anastomosis lasts ~3 min and, between each proximal anastomosis, flow is increased to normal. The bypass of the internal thoracic artery to left anterior descending artery is fashioned during re-warming to attenuate the hypothermic period. At the end of the bypass procedure, the heart is defibrillated if necessary [2,3].

Single or multiple clamping of the aorta during conventional cross-clamp cardioplegia and intermittent cross-clamp fibrillation techniques carries high risk of embolisation of the atheromatous material in the presence of a calcified ascending aorta [1–3]. The aorta non-clamp technique is a safer alternative in this particular group of patients. It may be performed on a fibrillating or decompressed beating heart [1]. However, we believe the institution of a vent is important for better myocardial protection.

References


* Corresponding author. Address: Atasehir, Zumrut Sitesi, Blok: 9, Daire: 9, Merkez Atasehir, Istanbul, Turkey. Tel.: +90 535 431 67 86; fax: +90 212 235 25 68.
E-mail address: muratugurlucan@yahoo.com (M. Ugurlucan).
doi:10.1016/j.ejcts.2010.03.013

Reply to the Letter to the Editor

Reply to Ugurlucan et al.

Manuel J. Antunes *

Center of Cardiothoracic Surgery, University Hospital, 3000-075 Coimbra, Portugal

Received 5 March 2010; accepted 6 March 2010

Keywords: Anastomosis; CABG; Venous grafts

I thank Ugurlucan et al. [1] for their comment to my paper [2]. They inform of a similar technique previously published by their group. I had not read their paper before, but have used this technique for several years and in many patients. However, there are some differences between the technique I described and that described by Ugurlucan et al. in their letter and paper. Since 1990, I have used ventricular fibrillation without aortic cross-clamping routinely in all coronary surgeries, with an accumulated experience of ~10 000 patients. For the open proximal anastomosis technique, I do not lower the temperature <30–32 °C and do not use ice-packs to wrap the patient’s head as I believe that the very short low-flow periods do not justify these additional protective measures.

Although this is irrelevant to this particular subject, I also do not believe that pulmonary artery venting, with or without left atrial venting, is better than the latter alone. Besides, I do not control the arterial pressure during the low-flow periods, always limited to 2 min, and not 3 min as proposed.