

Hospital, Istanbul, Turkey; Hacettepe University School of Medicine, Ankara, Turkey; Hacettepe University School of Medicine, Ankara, Turkey

Objective: There is an increasing use of full arterial revascularisation in coronary artery bypass surgery, and the radial artery has become commonly the conduit of choice. However, the RA has a potential for spasm. We studied the quantitative effects of mixed vasodilator agents in the RA and the ITA diameter using a scanning electron microscope (SEM) with 3-D anaglyph technique.

Methods: Ring segments of the RA and the ITA taken from 30 cases undergoing coronary artery bypass grafting were studied. A total of 120 vessel segments, which were cut into 5 mm-long rings, were tested. The harvested 60 vessel rings, 30 RA and 30 ITA, were not pre-treated. The remaining 60 arterial segments, 30 RA and 30 ITA, were placed in a mixed solution including nitroglycerin (60 µmol/L), Verapamil (60 µmol/L), Papaverine (450 µmol/L), and 30 ml autologous blood with 5000 IU unfractionated heparin. All 60 arterial segments were incubated during 15-20 min in the solution. The specimens were fixed in 2.5% glutaraldehyde, washed in phosphate buffer (pH 7.4), post-fixed in 1% osmium tetroxide in phosphate buffer (pH 7.4), and dehydrated in increasing concentrations of alcohol. Then the samples were sputtered with a 150 Å thick layer of gold in a BIO-RAD sputter apparatus. The images were taken as stereopairs by JEOL SEM ASID.

Results: All grafts have been used as a coronary artery bypass conduit. There was no evidence of arterial spasm and no change of the patients' electrocardiographic analysis after the operations. The patients have not required inotropic support postoperatively. The diameter of the pre-treated RA and the ITA were measured between 1.9 mm and 2.8 mm (mean 2.08 mm), and 1.3 mm or 1.9 mm, respectively, preoperatively. Whereas, diameter of the arterial segments, which were incubated in the mixed solution, were measured between 3.5 mm and 5.8 mm (mean 4.40 mm) for the radial artery, and they were measured between 2.8 mm and 3.9 mm (mean 3.60 mm) for the ITA. These findings were statistically significant in both arterial grafts.

Conclusions: We conclude that the described mixed vasodilator solution with heparinised autologous blood seems to be very effective as a pre-treatment agent for the arterial conduits. The study findings showed that the nature of the more vasodilator characteristic of the RA and the ITA support the necessity of a more active synergist pharmacologic intervention to relieve spasm and effective vasodilatation.

Cmp3.6

TOTAL ARTERIAL MYOCARDIAL REVASCLARIZATION IN ELDERLY—EARLY AND MID TERM RESULTS

Tomevski D., Gramatnikovski N., Gunay C., Cingoz F., Tatar H.
Military Medical Academy, Skopje, Republic of Macedonia

Objective: The aim of this study was to evaluate the early and mid-term results of total arterial myocardial revascularization (TAMR) in patients older than 60 years.

Methods: We studied prospectively 65 patients aged 60 years and older (mean 64.8±4.4, range 60-78 years) who underwent total arterial myocardial revascularization between January 2002 and June 2004. 41 (63.1%) had three-vessel coronary disease, 18 (27.7%) had two-vessel disease and 6 (9.2%) with left main disease. 22 patients had an old myocardial infarction (MI) and 11 unstable angina pectoris. Mean EF was 55%. All patients underwent TAMR. In total 167 distal anastomoses were constructed (2.6 per patient). Pedicled LITA and RITA, free RITA and radial artery were used as single or composite T- or Y- graft. Mean cross-clamp time was 32.3±7.1 min. There was one perioperative MI and one patient needed intra-aortic balloon pump. There was no operative mortality. There was one cerebrovascular accident. Mean extubation time was 4.3±1.2 h.

Results: Patients were followed-up in a mean period of 17.6±7.3 months (range 1-28 month). One patient died in this period (1.5%), one underwent PTCA (1.5%), two suffered angina pectoris (3.1%), there was no reoperation in this period. There was no occluded grafts in the early postoperative period (less than 30 days) patency 100%. Late (mean 16±2 month) LITA patency was 98.1% (one graft occluded), RITA patency was 93.4%, (one graft occluded) and RA patency was 93.2% (three grafts occluded).

Conclusions: In our study we concluded that using only arterial conduits in coronary bypass surgery in the elderly (patient aged over 60 years) is a safe procedure and demonstrated that total arterial revascularization in the elderly provides superior clinical results and improved patient outcome even in the short-term to midterm. Arterial conduit-related benefits were clearly evident with respect to higher patency rate, better outcome in terms of

angina recurrence, need of percutaneous transluminal coronary angioplasty or surgical reintervention and freedom from cardiac events.

Cmp3.7

USE OF THE MODIFIED T-GRAFTS FOR HEART REVASCLARISATION

Kaszczynski T., Litwinski P.

IIInd. Cardiac Surgery Department, Institute of Cardiology, Warsaw, Poland

Objective: The T-graft procedure achieves complete arterial revascularization in coronary three-vessel disease. In this technique, all bypass anastomoses are supplied by the left internal mammary artery (LIMA). The radial artery (RA) provides the same clinical and angiographic results both as aorto-coronary and composite Y-graft with the left LIMA. When the RA is used as Y-graft the procedure is more technically demanding and a greater number of distal coronary anastomoses is possible. RA grafts to targets with stenosis 70% appear to be at risk of failure. We present a new operative technique for multiple arterial revascularization using composite radial and internal thoracic arterial grafts. In this technique LIMA is harvested up to the half of its length and anastomosed end to the side of the RA, which supplies the anterior and lateral wall. The use of the RA as a supplying, bypass graft presents we believe several technical advantages.

Methods: Between April 2004 and February 2005, 22 patients had CABG with inverted graft. These patients were 5 women and 17 men with a mean age of 64 years (range 44-78). The indication for inverted graft was aortic calcification in 7 patients, and the need for total arterial revascularization in the rest of patients. All procedures were performed without cardiopulmonary bypass. In all patients the outflow from composite graft was estimated in ml/min prior to implantation.

Results: Overall, 56 distal anastomoses were made (average number per patient 2.9; range 2-4), of which 38 were with inverted grafts (average number 3.2; range 2-4) and nine were with a single attached ITA. All procedures were performed as OPCAB procedures. All patients are alive and well. There was no perioperative myocardial infarction or stroke. Angiography performed in the early postoperative period in 10 patients showed that all anastomoses were patent. Rest of patients had a 16 slice computed tomography which revealed patent grafts. All patients were asymptomatic and had negative results of stress test. Postoperative angiography and the stress test were performed during the second hospitalization.

Conclusions: Tadashi Tashiro described a technique of implanting RA to the RIMA which was implanted to the aorta in order to increase the range of revascularisation. We modified this approach attaching RA to the LIMA. The rationale was to obtain the bigger diameter of utilizing grafts, to increase the range of revascularisation of anterior wall. And finally to increase the capability of blood transmission.

Cmp3.8

ARTERIAL GRAFTING FOR CORONARY ARTERY DISEASE. THE CYPRUS EXPERIENCE

Kaoutzanis G., Maimaris M., Kokkinos C., Bekos C., Hadjimichael L., Houris S.

Cardiovascular and Thoracic Surgery Department of the Nicosia General Hospital, Nicosia, Cyprus

Objective: Multiple reports demonstrate that the use of arterial grafts for CABG ensure better short as well as long-term patency results. The aim of this study is to review and evaluate our 5-year results using these arterial grafts.

Methods: From January 2000 until December 2004, 110 patients underwent CABG at our clinic using a combination of left internal mammary artery (in all 110 patients), right internal mammary artery (in 10 of the patients), the left radial arteries (in all 110 patients) and the right radial artery (in 10 of the patients). The left internal mammary artery was used on the left anterior descending artery, the radial arteries were used on branches of the circumflex and right coronary artery, and the right internal mammary artery on branches of the right coronary artery as well as on branches of the circumflex artery as T or Y grafts.

Results: There were no hospital mortalities, not one incidence of perioperative myocardial infarction. In all, no arterial graft harvest related complications. The mean length of intensive care unit stay was ~ 50 h. (range 20-140 h). To date, all these patients are well in health and symptom free.

Conclusions: Our results using arterial grafts in coronary artery bypass surgery exhibit no increase in mortality, morbidity or other complications of the procedure. A much longer term follow-up is needed for more conclusive evidence.