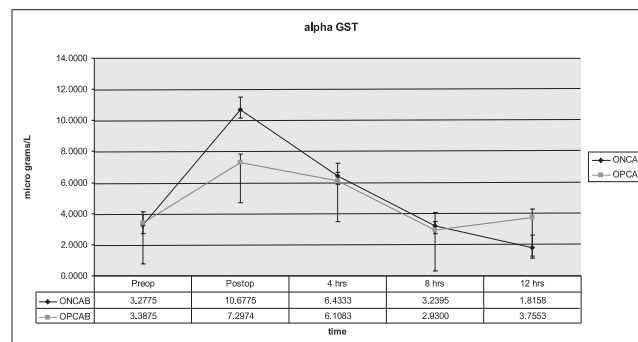


coronary artery bypass grafting (CABG) with and without CPB (OPCAB).

**Methods:** Forty patients undergoing first time CABG were randomized to either CPB (n=20) or OPCAB (n=20). Blood samples were collected from the radial artery into ethylenediaminetetraacetic acid (EDTA)-containing glass tubes shortly after anaesthetic induction, at the end of operation and 4,8,12 hours postoperatively. The samples were immediately centrifuged in a refrigerated centrifuge to separate the plasma, which was subsequently frozen and stored at -70°C until assayed.

**Results:** There were no significant differences between the two groups.



**Conclusion:** Both OPCAB and ONCAB induced similar levels of release of alpha GST. Possible explanations for this include our routine use of aprotinin to attenuate inflammatory response, use of pulsatile flow and the fact that OPCAB causes severe transient multiple episodes of systemic hypotension.

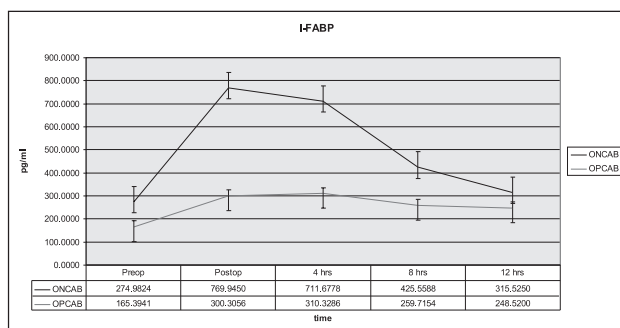
**A prospective randomized study to evaluate changes in alpha-GST as a novel marker of hepatocellular necrosis in patients at high-risk of renal injury undergoing coronary revascularization with and without cardiopulmonary bypass**

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**Background:** The pathogenesis of liver dysfunction after cardiac surgery is multi-factorial. Whilst studies of gut perfusion suggest that alterations in splanchnic blood flow to be a major factor it has also been theorized that features peculiar to CPB pose an additional risk. We examined this hypothesis using a novel marker termed alpha glutathione-s-transferase (a-GST) a 26 KD protein that is rapidly released from hepatocytes following injury in patients undergoing



**Results:** There was a significant increase in I-FABP levels immediately postoperatively (p=0.0021) and at 4 hours (p=0.0089). There after no statistical differences were noted between the two groups up to 12 hours postoperatively.

**Conclusion:** To our knowledge this is the first study to document changes in I-FABP in this patient group. It adds further weight to the theory that CPB induced changes in the splanchnic circulation causes occult damage of the intestinal villi and is responsible for initiation of the systemic inflammatory response.

**A prospective randomized study to evaluate changes in mannose binding lectin (MBL) as a marker of complement activation in patients undergoing coronary revascularization with and without cardiopulmonary bypass**

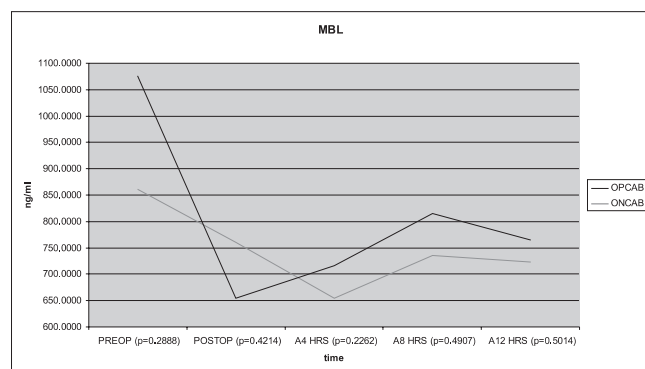
65

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**Background:** Cardiopulmonary bypass (CPB) is a potent activator of the complement pathway and that patients undergoing coronary artery bypass grafting (CABG) with CPB have greater activation of the complement pathway than those without (OPCAB). MBL is involved in the recognition of a wide range of microorganisms and triggers the most ancient pathway of complement activation. We examined the role of MBL as a surrogate marker of complement activation by a third pathway.

**Methods:** Forty patients were randomized to either CPB (n=20) or OPCAB (n=20). Blood samples were collected from the radial artery into ethylenediaminetetraacetic acid (EDTA)-containing glass tubes shortly after anaesthetic induction, at the end of operation and 4,8,12 hours postoperatively. The samples were immediately centrifuged in a refrigerated centrifuge to separate the plasma, which was subsequently frozen and stored at -70°C until assayed.

**Results:** There were no statistical differences between the 2 groups.



**Conclusion:** This data suggests that the Complement pathway continues to be activated via the third pathway to a similar degree in both groups. However the area under the curve over the 12 hour period is less with OPCAB.

**A prospective randomized study to evaluate changes in H-FABP as a novel marker of myocardial necrosis in patients undergoing coronary revascularization with and without cardiopulmonary bypass.**

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**Background:** Myocardial damage in patients undergoing coronary artery bypass grafting (CABG) is an important cause of postoperative morbidity and mortality. A whole body response to cardiopulmonary bypass (CPB) can cause such damage. We examined this hypothesis using a novel marker termed heart type fatty acid binding protein (H-FABP) in patients undergoing CABG with and without CPB (OPCAB). H-FABP is a 15 KDa cytosolic protein that is abundant in the heart. It appears in the blood as early as 1.5 hours after infarction peaks around 6 hours and returns to baseline values in 24 hours.

**Methods:** Forty patients were randomized to either CABG with CPB (ONCAB) (n=20) or OPCAB (n=20). Blood samples were collected from the radial artery into ethylenediaminetetraacetic acid (EDTA)-containing glass tubes shortly after anaesthetic induction, at the end of operation and 4,8,12 hours postoperatively. The samples were immediately centrifuged in a refrigerated centrifuge to separate the plasma, which was subsequently frozen and stored at -70°C until assayed.

**Results:** There was a statistically significant increase in H-FABP immediately post operatively in the CPB group post operatively (p<0.001), 4 hours (p<0.0266), 12 hours (p<0.0319).

**Conclusion:** Patients undergoing CABG with CPB suffered greater myocardial damage as detected by changes in H-FABP. Further randomised studies are required to validate the role of H-FABP in this patient group.

**A prospective randomized study to evaluate changes in B-FABP as novel marker of neurological injury in patients undergoing coronary revascularization with and without cardiopulmonary bypass – Preliminary results**

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**Background:** The institution, maintenance and discontinuation of cardiopulmonary bypass (CPB) is associated with considerable neurological morbidity. Postoperative neurological deficits occur in 0.8-5.2% of patients, whereas neuropsychological disorders occur in 26-79% of patients. The aim of this study was to assess the relative contribution of CPB in patients under going coronary artery bypass grafting (CABG) with and without CPB (OPCAB).

**Methods:** Thus far 27 patients have been randomized to either CABG with CPB (ONCAB) (n=12) or OPCAB (n=15). Blood samples were collected from the radial artery into ethylenediaminetetraacetic acid (EDTA)-containing glass tubes shortly after anaesthetic induction, at the end of operation and 4,8,12 hours postoperatively. The samples were immediately centrifuged in a refrigerated centrifuge to separate

the plasma, which was subsequently frozen and stored at -70°C until assayed.

**Results:** There was no statistically significant change in B-FABP levels at any of the specified time points. Further more there was no correlation with either H-FABP or S100 beta levels.

**Conclusions:** The frontal lobe has the highest concentrations of B-FABP. B-FABP is not detectable in plasma or serum in healthy individuals. In mild traumatic brain injury, serum concentrations of B-FABP were elevated in 68%. In electroconvulsive therapy, B-FABP in serum was elevated in 6% of all samples. The concentrations of brain markers in plasma have to be evaluated with care to prevent a mix up of changes in blood-brain barrier permeability and real brain tissue injury. The fact that we can detect B-FABP suggests that both OPCAB and ONCAB cause similar levels of neurological injury.

### Offpump coronary revascularisation - Are the gender paradoxes beginning to vanish?

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**Background:** Women have been associated with a high prevalence of perioperative morbidity and mortality in coronary artery bypass grafting. We retrospectively studied our cases done over last two years to see whether the increasing performance of off pump coronary bypass grafting has improved the outcomes in women.

**Methods:** We retrospectively compared 752 women with 4870 men who underwent off pump coronary bypass grafting from July 2004 to June 2006 at our institute. Women were older (64.26±8.09 vs 60.16±9.42) but has similar incidence of diabetes, hypertension and preoperative myocardial infarction. They are more likely to present with emergency status (63% vs 56%) although they have better preserved left ventricular function (62% vs 56.9% with normal & 8.5% vs 12.7% with <30% ejection fraction) compared with men.

**Results:** The extent of coronary artery disease was same as shown by angiography. Mean number of grafts women received were less (2.73±0.82 vs 2.85±0.82) and were less likely to receive internal mammary grafts (83.5% vs 70%). The mean ICU stay (3.7±1.5 vs 2.3±1.2) and hospital stay (9.5±6.5 vs 8.7±5.2) were longer. The preoperative mortality was 1.6% in women compared to 0.8% in men.

**Conclusion:** Off pump coronary bypass grafting has low perioperative morbidity and mortality in women. Although, better and acceptable, the morbidity & mortality is still higher compared with men.

### Aortic homografts: experience of two techniques in Tasmania, Australia

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**Background:** Implantation technique is one of the potential mechanisms of aortic homograft failure.

**Methods:** We did retrospective review to evaluate the early and long term outcomes of patients undergoing homograft implantation with either freehand or aortic root replacement technique. From January 1992 through October 2006, 28 Patients have undergone cryopreserved homograft aortic valve replacement at our institution. From January 1992 to 1998, free hand technique was used since then root replacement. Early results were accessed with intraoperative transesophageal echocardiography while recent surface

echocardiograms of all hospital survivors provided long term follow-up. Critical analysis of failed homografts was done.

**Results:** All patients survived the operation. In the freehand AVR group of 14 patients, 1 lost to follow-up and 2 died of cardiac causes. In the homograft aortic root replacement group of 14 patients, 2 lost to follow-up and 1 died of cardiac cause. In freehand group, 2 patients had early reoperations and 4 patients had late reoperations because of homograft failure. 7 out of 14 patients developed more than moderate aortic incompetence in the long term follow up in freehand AVR group. Though no early reoperations were required in root replacement group, 1 patient did not survive emergency coronary artery bypass grafting done 6 months after his homograft surgery. All survivors are free from thromboembolism and infective endocarditis.

**Conclusion:** There was no early mortality in both groups. However, freehand group had significant early and late homograft failure necessitating reoperation compared to none in root replacement group. We conclude that root replacement is near ideal aortic homograft implantation technique with least risk of homograft failure.

### Complete ring mitral annuloplasty in children with mitral regurgitation

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**Background:** To demonstrate ring annuloplasty in, 65 cases (35 males and 31 females) for repair of the mitral valve, for mitral regurgitations due to annular dilatations.

**Methods:** Mean age of patients 52.15 years (range 4-60 years). Technique using Gortex-Ring cut from Gortex aortic tube graft is cheap, embedded around Annulus using 3-0 prolene sutures, to advance the posterior annulus, anteriorly for better coaptation to reduce MR. Irrespective of the size of annulus, size of Gortex tube graft, for ring is selected according to Normogram's of Rowlatt J. F et al (1963) using Body surface area. Operative technique was successfully used in 65 young children and adults aged (4-10 yr-15 pts; 11 to 15 yr 29pts; rest adults (>15yr) with history of rheumatic heart disease 16 cases. The 4 cases in NYHA class IV, 26 cases, in class III and 31 cases in class II and on decongestive drugs rest in NYHA CI-I. 2D Eco confirmed central jet of MR annular dilatation, good pliability of leaflets, Minimal fibrosis and Subvalvular fusion without calcification LV dilatation or Pulmonary hypertension. (Maximum LVIDD 5 cm 8 pts with normal ejection fraction). Six patients needed concomitant aortic valve replacement. Ring annuloplasty repair was associated with commissurotomy in 7 cases, AML cleft repair 3 cases; chordae shortening 15 cases. Patients pre-op 2D Echo, TEE on operations, repeat on 10th day before discharge and repeat echo after 3 mo/6mo/1 yr/3yr were done showed minimal or trivial MR with NYHA-CII and drugs with 100% follow up.

**Results:** All patients remain in NYHA class I with minimal decongestive drugs penicillin prophylaxis and no anti coagulants which was stopped after 3 months. Only one patient, who had commissurotomy associated with ring annuloplasty, developed mitral re-stenosis after 36 months. She was treated with Balloon Mitral Valvotomy. There has been no early or late death. The mean duration of follow up is 60.2±5.3 months (12 to 120 months).

**Conclusion:** It is easily reproducible technique with good results.