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Coronary artery bypass grafting with or without carotid endarterectomy in patients with established carotid artery stenosis: A systematic review and meta-analysis

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Objective:

To systematically review and meta-analyse stroke and mortality rates following coronary artery bypass grafting (CABG) with or without carotid endarterectomy (CEA) in patients with concomitant asymptomatic carotid artery disease and symptomatic coronary artery diseases.

Methods:

A comprehensive electronic search was undertaken. Primary outcome was postoperative stroke, secondary outcomes were acute myocardial infarction (AMI) and mortality rates in patients with >80% of carotid artery stenosis.

Results:

A total of 11,486 patients were analysed from eight articles. There was no difference in pre-operative AMI or stroke among both cohorts (OR 1.48, 95% CI (0.77 - 2.86), p=0.24; and OR 1.09, 95% CI (0.63 - 1,89), p=0.76 respectively). Postoperatively, there was no difference in stroke or AMI rates between both cohorts (OR 0.55, 95% CI (0.33 - 1.04), p=0.07; and OR 1.00, 95% CI (0.50 - 1.99), p=0.99 respectively). Similarly, no differences were noted at in-hospital or one-year mortality rates (OR 1.02, 95% CI (0.37 - 2.83),p=0.97; and OR 1.58, 95% CI (0.37 - 6.68), p=0.54 respectively).

Conclusion:

The results from our analysis suggests that concomitant CEA and CABG, in patients with >80% of carotid artery stenosis, doesn't increases the rate of postoperative stroke, AMI or mortality rates. Therefore, such combined procedures should be considered in selected patients to provide a potential benefit at long-term.

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Can a Haemostatic Checklist Reduce Return to theatre rate in Cardiac Surgery

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Return to Theatre for bleeding is one of the most common complications following cardiac surgery with approximately 2%-8% of re-exploration rate worldwide. It is associated with increased in-hospital mortality and morbidity e.g. readmission to ICU, increased ICU & hospital stay, infection, atrial fibrillation, renal insufficiency, increased blood products transfusion & associated complications. It's obvious that it has a detrimental effect that surpasses that of any other known potentially modifiable risk factors in Cardiac Surgery. We sought to develop a haemostatic checklist with the specific aim of reducing the return to theatre rate and 24-hour blood loss.

A prototype checklist was developed on the basis of the Cleveland Clinic Bleeding checklist from 2014; with the involvement of all the members of our Cardiac Surgery team i.e. surgeons, anesthetists, nursing team and perfusionists. The Checklist was used on a pilot basis in 2 theatres for the duration of 20 weeks (April' 18 – August' 18). With the feedback and learning from the pilot phase, the checklist was modified and implemented in all cases with sternotomy in all theatres for the next 26 weeks (September'18 – February'19)

The year leading up to the institution of the checklist, the RTT for our unit was 4.44%. A total of 196 & 309 checklists were completed during the pilot phase and with modified checklist respectively. RTT during the pilot phase was 4.2% (no significant improvement) and during the modified checklist was 2.9%, which showed an improvement (P 0.25). There was also statistically significant decrease in 24 hours blood (Pre CL 731 ml, Pilot Phase 689 ml, Modified CL 647 ml; $p < 0.0001$) and statistically significant improvement in Day 4 Hb (Pre CL 89, Piot Phase 93, Modified CL 94; $p< 0.0001$). In 4.5% of cases (14/309) during the use of the modified checklist, a bleeding point was found at the time of the checklist, thereby preventing a RTT.

Haemostatic Checklist is a feasible way to assess bleeding at the end of Cardiac Surgery and can become an important tool in reducing RTT rate and 24-hour blood loss.

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Is the Venoarterial Carbon Dioxide difference/Arterial-Venous Oxygen content difference ratio (P(v-a)CO2/C(a-v)O2) correlated with lactate during cardiac surgery under cardiopulmonary bypass ?

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Introduction: Cardiac index (CI), Lactate and Central venous oxygen saturation (ScvO2) are established markers for assessing tissue oxygenation, based on transport (DO2)/oxygen consumption (VO2) balance (1). In critically ill patients, P(v-a)CO2/C(a-v) O2) ratio has been suggested as a reliable predictor of tissue hypoperfusion with a threshold of 1.4(3). The aim of this study was to investigate the interest of this ratio comparing to lactate during cardiopulmonary bypass (CPB) in scheduled adult cardiac surgery. Method: After ethics committee approval and signed informed consent, 12 patients were prospectively included. Arterial and venous blood gas parameters, CI, DO2 and VO2 calculated values were assessed at: T0 initiation of surgery, T1 before CPB, T2 30 min after starting CPB, T3 1h on CPB, T4 off CPB, T5 end of surgery, T6 1h after intensive care unit (ICU) admission, T7 6h after ICU admission. Statistical analysis used Spearman correlation and ANOVA; considering $p<0.05$. Result: patients included 3 female and 9 male, aged 64.75 ± 15.30, Euroscore 1.64±1.25. Aortic cross clamping 86.09 ± 28.47 min and CPB 116.05 ± 32.54 min. No statistically significant correlation was observed between ratio and lactate. Neither with CI, DO2 and VO2. ANOVA analysis of variance indicated ratio values stability between T0 and T7, with abnormal values >1.4 observed by T2. Normal Lactate values in all patients (< 2 mmol/l) and ScVO2 < 70% by T5. Conclusion: Under the conditions of the study, P(v-a) CO2/C(a-v) O2) ratio does’nt seem to be correlated with lactate under CPB. Further studies are required to provide a clear-cut results

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Reducing postoperative morbidity after cardiac surgery

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Background: Thirty-day mortality following cardiac surgery has decreased during the last decade. However, nearly every fifth patient was readmitted to hospital during the first 30 days after surgery, mainly due to suboptimal medical treatment, infection or pleural effusion. We aim to improve early outcome with intensified follow-up with potential for early intervention.

Methods: We established a student-led surgical outpatient clinic, with postoperative patient follow-up at two and four weeks after surgery in addition to routine patient follow-up in cardiology out-patient clinic. Patients are monitored by six-minutes walking test, direct spirometry, electrocardiogram, blood pressure measurement, focus assessed transthoracic echo scanning, wound inspection, control of subscribed medicine. Outcome will be compared to a control group consisting of all patients discharged on days where medical students were not available. The control group gets regular follow-up in cardiology out-patient clinic. Both groups are given quality of life questionnaires one, six and twelve months after cardiac surgery. Endpoints include number and reason for readmission, total length of all hospitalizations, death up to one year after surgery. In addition, we register the degree of heart failure and functional level.

Results: Currently, we have enrolled 110 patients into the intensified follow-up group and 340 patients into the control group.

Perspectives: We believe that closer postoperative follow-up after heart surgery will provide us with knowledge that will enable us to reduce the overall morbidity. We expect preliminary results to be available at SATS meeting.

3062-A-1923

Icelandic cardiac transplantation recipients – indications and outcome

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Introduction: Cardiac transplantations are not performed in Iceland but have been performed on Icelanders overseas for decades, mostly in Sweden. We studied all Icelandic cardiac transplant recipients; focusing on indications, incidence and the outcome of the procedures, including long-term survival.

Methods: Patient information was gathered from theTransplantation Clinic at Landspitali where all Icelandic cardiac transplant recipients are cared for. Medical records from Landspitali and transplant-centers abroad were reviewed. The study-period ranged from the first cardiac transplant recipient in January 1988 untill end of March 2019. Overall survival (Kaplan-Meier) was estimated with a mean follow-up of 10.7 years.

Results: Altogether 23 Icelanders (78% males, mean age 37 years, range: 4.5-65 years) received a donor heart; with one individual receiving two hearts 15 years apart. The operations were performed in Gothenburg (n=19), London (n=3) and Copenhagen (n=2). Three patients had simultaneous heart- and lung transplants and two received concomitantly both heart- and kidney transplants. The age-adjusted incidence was 2.4 heart-TX pmp/year, increasing to 4.7 heart-Tx pmp/year after 2009. Indications were dilated cardiomyopathy (n=16), congenital heart diseases (n=4), ischemic coronary artery disease (n=2), hypertrophic cardiomyopathy (n=1) and re-transplantation (n=1). Five patients had a ventricular assist device (VAD) preoperatively as a bridging therapy. At follow-up 5 out of the 23 patients had passed away, ranging from 0 to 24 years after transplantation. Overall one- and five-year survival was 96% and 90% respectively, the calculated median survival time after cardiac transplantation was 24.2 years.

Conclusions: This population-based study confirms that the clinical outcome of heart transplantation in Icelanders is comparable to large transplant-centers abroad. However, the age-standardized incidence of this procedure is lower than in neighboring countries.