

ABSTRACT WITHDRAWN

P1242**Prognostic value of the leukoglycaemic index in postoperative of coronary artery bypass grafting**

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Introduction and background: The leuko-glycaemic index (LGI) has been associated with a poor prognosis in many critical care settings. However there is no evidence regarding the prognostic value in postoperative of coronary artery bypass grafting.

Purpose: The aim of this study was to analyse the prognostic value of LGI in postoperative of coronary artery bypass grafting.

Methods: The study was performed using the Cardiac Surgery database, prospectively completed between 2000 and 2017. Blood glucose levels and white blood cells count were evaluated in the immediate postoperative period, and then the LGI was calculated by multiplying both values, and dividing them by a thousand. The LGI was analysed in quartiles according to 25, 50, and 75 percentile values. The ROC curve was used to determine a cut-off value. The primary combined endpoint was in-hospital death, low cardiac output (LCO) or acute kidney injury (AKI). Secondary endpoints included in-hospital death, acute kidney injury, atrial fibrillation (AF), LCO, and dialysis requirement.

Results: The study evaluated 3813 patients undergoing coronary artery bypass grafting, most of them male (88,5%). The mean age was 64,6 (SD 11,8). Demographics and baseline clinical characteristics were similar in each quartile. Coronary artery bypass grafting was mainly off-pump surgery (89,8%). The mean of the LGI was 2035. Presence of the primary endpoint significantly increased per LGI quartile (9,2%, 9,7%, 11,8% and 15%; $p=0,0001$). The LGI was also associated with an increased occurrence of in-hospital death, LCO, AKI and atrial fibrillation. The best prognostic cut-off value for the primary endpoint was 2000. In a multivariate logistic regression model, LGI was independently associated with in-hospital death, LCO or AKI. (Table 1)

Multivariate for the primary endpoint

	OR	95% CI	p
Leucoglycaemic Index >2000	1,508	1,213–1,874	0,0001
Age	1,035	1,024–1,047	0,0002
Elective surgery	0,590	0,480–0,725	0,0001
Female	1,342	1,011–1,782	0,042
Diabetes	1,446	1,168–1,791	0,001
Severe left ventricular dysfunction	2,327	1,840–2,944	0,0001

Conclusion: The LGI was an independent predictor of in-hospital death, low cardiac output or acute kidney injury in postoperative of coronary artery bypass grafting.

P1243**Postoperative atrial fibrillation after coronary artery bypass grafting surgery**

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Introduction: Postoperative atrial fibrillation (PoAF) is the most common arrhythmia following cardiac surgery, which increase the patient's morbidity and mortality.

Purpose: The aim of this study was to evaluate new onset of atrial fibrillation (AF) after isolated coronary artery bypass grafting (CABG) surgery, its clinical and surgical predictors, and its impact in immediate and long-term outcomes.

Methods: Retrospective study including all CABG surgeries performed in a tertiary centre, between 2004 and 2013. Patients with documented episodes of AF or pacing rhythm before cardiac surgery were excluded. Preoperative, surgical and postoperative data were collected through clinical files and informatics databases. Qui-square tests and independent t-tests were used to compare categorical and continuous data, respectively, between patients with and without PoAF. A multivariate logistic regression model was used to identify independent risk factors of PoAF. To determine the effect of PoAF in long-term survival, we used Kaplan-Meier curves, Log Rank test and multivariate Cox regression (maximum follow-up time: 13 years).

Results: We included 3193 patients, mean age of 63±10 years, 79% being male. PoAF occurred in 589 patients (18%), 3±3 days after surgery, the majority pharmacologically cardioverted with amiodarone (96%). These patients were older (67±9 vs. 62±10 years, $p<0,001$), more frequently hypertensive (78% vs. 71%, $p=0,001$) and had lower preoperative creatinine clearance (CC) values (77±31 vs. 85±30ml/min, $p<0,001$), longer aortic cross clamp time (61±21 vs. 60±18min, $p=0,003$) compared with patients without PoAF. In multivariate analysis, older age (OR: 1.047, 95% CI: 1.029–1.065, $p<0,001$) and larger left atrial diameter (OR: 1.041, 95% CI: 1.012–1.070, $p=0,005$) were determined as independent predictors of PoAF. These patients also revealed longer hospitalization time (11 [3 to 193] vs. 8 [4 to 318], $p<0,001$) and higher hospital mortality (2.0% vs. 0.6%, $p<0,001$). Regarding long-term survival, patients with PoAF showed lower cumulative survival than patients without AF events (57% vs. 71%, $p<0,001$). PoAF was also found as an independent predictor of mortality in multivariate Cox regression (HR: 1.330, 95% CI: 1.103–1.603, $p=0,003$).

Conclusion: PoAF incidence after CABG surgery was 18%. Older age and larger left atrial diameter were settled as PoAF independent predictors. Additionally, the occurrence of this arrhythmia was independently associated with lower long-term survival, after CABG surgery.

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P1244**Neutrophil to lymphocyte ratio: a new preoperative predictive index of postoperative atrial fibrillation**

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Background: Postoperative atrial fibrillation (POAF) is a common adverse event during cardiovascular rehabilitation (CR) after cardiac surgery, especially after valvular heart surgery. Several studies showed an important role of inflammation in the pathogenesis of this condition. Neutrophil to Lymphocyte Ratio (NLR) has recently emerged as an inflammation index and as an important predictor of adverse events and mortality. In particular, this marker was studied on patients admitted for STEMI and in patients undergoing cardiac surgery, percutaneous vascular intervention and major vascular surgery. However, further investigations are needed to clearly define the role of NLR as a POAF predictor after valvular heart surgery.

Purpose: The aim of this study is to investigate the association between preoperative and CR admission inflammatory parameters (i.e. NLR, White Blood Cells Count -WBCs- and WBCs subpopulations) and the onset of new POAF episodes during CR.

Methods: We conducted a retrospective study including 568 consecutive patients who underwent heart valve surgery who were subsequently admitted to our inpatient CR Unit. Data were collected before surgery, at the CR admission and discharge. NLR was calculated at each of these time points.

Results: A total of 193 (34%) patients developed POAF during CR. These patients were significantly older ($p<0,001$) and showed higher NLR values ($p<0,001$) and lower lymphocyte counts ($p=0,014$) at admission in the cardiac surgery department in comparison with patients without POAF. Regarding CR admission values, WBCs ($p=0,025$), neutrophils ($p=0,021$) and monocytes counts ($p=0,041$) were higher. The univariate analysis confirmed the importance of previous history of atrial fibrillation (OR=4,429; CI = 3,035–6,463; $p\leq 0,0001$) and age (OR=1,044; CI=1,028–1,059; $p<0,0001$), already known POAF predictors. The analysis of the inflammatory parameters showed that preoperative NLR values (OR=1,239; CI=1,091–1,408; $p<0,001$), preoperative lymphocyte count (OR=0,651; CI= 0,467–0,908 $p=0,011$), CR admission NLR (OR=1,116; CI=1,036–1,203; $p=0,004$) and CR admission WBCs (OR=1,068; CI=1,004–1,136; $p=0,037$) are associated with POAF onset. The multivariate analysis confirmed that the preoperative NLR value $>2,95$ (OR=1,771; CI=1,174–2,672; $p=0,006$) is an independent predictor of POAF development during CR.

Conclusion: Preoperative NLR was identified for the first time as an independent predictor of POAF development during CR after valvular surgery. This parameter is easy to obtain from the preoperative routine analysis and can be used as a simple index to predict the risk of POAF onset. Defining the role of WBCs and inflammatory status in the etiopathogenesis of POAF may help in developing more targeted prophylactic and therapeutic strategies in the future.

P1245**Evaluation of radial artery graft patency in multiple arterial revascularization: long-term competing risk investigation among 1654 patients**

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Background: The potential benefits of multiple arterial revascularization (MAR) using right internal thoracic arteries (RITA) and radial arteries (RA) in addition to a left internal thoracic artery (LITA) remains uncertain.

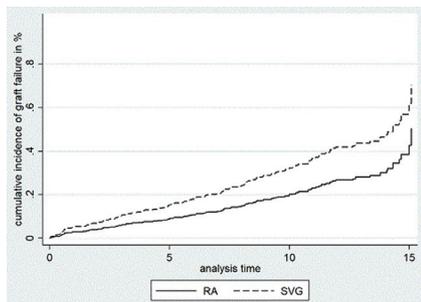
Purpose: Aim of this study was to investigate long-term patency and need for

subsequent target revascularization among non-ITA grafts in patients undergoing MAR using competing risk analysis.

Methods: A prospective longitudinal follow-up study of 1654 patients undergoing MAR between 2001 and 2016 is presented. During a median follow-up of 7.4±4.0 years (11914 patient years), major cardio- and cerebrovascular events (MACE) and graft patency were assessed through clinical manifestation, coronary angiography (CA) or coronary computed tomography (CTA). In patient-wise analysis, Kaplan-Meier and multivariable Cox regression was performed to analyse survival, MACE-free survival and repeat revascularization. In graft-specific analysis, graft patency was evaluated with competing risk analysis. All multivariable models were adjusted or stratified for a propensity-score including relevant clinical and graft-specific variables. Graft stenosis of more than 70%, string phenomenon and graft occlusion were defined as non-functioning grafts.

Results: BITA grafting was performed in 910 patients (55.0%) and 744 patients (45.0%) received a LITA graft together with at least one RA. Among BITA patients, 187 patients also received a RA as a third arterial conduit (187 patients, 20.6%). Propensity-score stratified Cox proportional hazards analysis identified BITA grafting to be associated with improved long-term survival (HR: 0.60; 95% CI: 0.39–0.93; p=0.022), MACE-free survival (HR: 0.32; 95% CI: 0.22–0.45; p<0.001), and lower need for repeat revascularization (HR: 0.54; 95% CI: 0.36–0.91; p=0.003) compared to LITA+RA±SVG.

Among 455 patients (27.5%), 373 underwent CA and 82 patients received CTA. In univariable graft analysis, LITA and RITA grafts showed highest graft patency (LITA vs. RITA: log-rank p=0.47), and RA grafts were superior regarding patency compared to SVG (RA vs. SVG: log-rank p<0.001). Among CA/CTA studied grafts, in-situ RITA was associated with significantly higher patency rate compared to RITA-free grafts (94.7% vs. 83.9%, log-rank p=0.039). Propensity score-adjusted competing risk graft analysis included 533 LITA (33.3%), 161 RITA (10.1%), 419 RA (26.2%) and 487 SVG (30.4%) at risk. Adjusted competing risk analysis revealed RA grafting to be associated with significantly lower risk for graft occlusion compared with SVG (SHR: 0.61; 95% CI: 0.45–0.82; p=0.001). Furthermore, RA grafting was associated with significantly lower rates for target revascularization (SHR: 0.57; 95% CI: 0.35–0.94; p=0.001).



Cumulative incidence function: RA vs SVG

Conclusions: In MAR, the use of in-situ RITA shows similar long term patency compared to LITA. Compared to SVG, RA shows superior long term patency and a lower need for future target vessel revascularization.

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A new approach to intra- and early postoperative glycemic control in patients with IHD and diabetes mellitus type 2 undergoing CABG

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Objectives: The aim of our study was to assess the continuous glucose monitoring (CGMS) efficacy in association with insulin pump therapy in patients with IHD and diabetes mellitus type 2 (DM2) undergoing CABG in intra- and early postoperative periods.

Methods: The study involved 86 patients (mean age 62±6, 6 years) undergoing isolated CABG in our center between April 2016 and November 2017. Patients were divided into two groups: 39 patients with DM2 and 47 patients without DM2. In both groups of patients we used CGMS in intra- and early postoperative periods (72 hours). Moreover, in patients with severe DM2 CGMS was associated with insulin pump therapy (MiniMed Paradigm Veo 554/754) to successful intra- and postoperative glucose controlling. Blood samples were taken before surgery, and then at one hour, 12 hours, 7 days, and 1 year after the operation. Besides commonly used tests (such as HbA1C, CRP, etc.), we analyzed asymmetric dimethylarginine (ADMA), leptin and adiponectin levels in order to estimate their prognostic value.

Results: During 48 hours after surgery there was a trend to high glucose levels in both groups of patients. However, the use of Paradigm Veo in patients with severe DM2 resulted in glycemic control improving in early follow-up (72 hours). In addition, ADMA levels were lower in intra- and early postoperative periods in patients using Paradigm Veo compared to patients prescribed bolus insulin therapy (p=0, 0001). The incidence of pericarditis was also lower in the early postoperative period in patients using Paradigm Veo compared to patients prescribed bolus insulin therapy (p=0, 034). Furthermore, at 1 year post- CABG, significantly lower leptin

levels and higher adiponectin levels were revealed in patients using Paradigm Veo in the perioperative period (p=0,047; p=0, 021).

Conclusions: We demonstrated the CGMS feasibility, safety, and efficacy in association with insulin pump therapy in patients with severe DM2 undergoing CABG. Our study revealed decreased ADMA and leptin levels, and increased adiponectin levels in patients using Paradigm Veo in the perioperative period.

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ABSTRACT WITHDRAWN

SPECIALS IN CARDIOLOGY: OBSTRUCTIVE SLEEP APNEA AND TAKOTSUBO SYNDROME

P1248

Impact of adherence to continuous positive airway pressure on the long-term clinical outcomes in patients with acute myocardial infarction and obstructive sleep apnea

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Background: Untreated obstructive sleep apnea (OSA) can have adverse effects on the long-term prognosis in patients with acute myocardial infarction (MI).

Purpose: In the current study, we aimed to assess our hypothesis that adherence to continuous positive airway pressure (CPAP) may be a key determinant in the long-term prognosis of acute MI patients with moderate to severe OSA.

Methods: We recruited 349 patients who underwent primary percutaneous coronary intervention and polysomnography at twelfth day after admission. Control patients were defined as those with an apnea-hypopnea index (AHI) <5 events/h. Patients with an AHI ≥20 events/h were classified as those with good adherence to CPAP and those with interrupted CPAP. The primary clinical outcome measures were all-cause death, cardiac death, and major adverse cardiac events defined as a composite of cardiac death, recurrent acute coronary syndrome, and re-hospitalization for heart failure.

Results: The cumulative incidence of all-cause death and cardiac death was increased in patients with interrupted treatment (n=105) compared with those with good adherence to CPAP (n=100), and 104 controls (13% vs. 8% vs. 5%, Log rank p=0.007; 5% vs. 1% vs. 0.7%, Log rank p=0.027, respectively). The long-term clinical outcomes in patients with good adherence to CPAP and those in controls were comparable using Cox regression analysis. Multivariate Cox regression analyses showed that interrupted CPAP was an independent predictor