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Abstracts

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Tagungspräsidentin:
Univ. Prof. Dr. Andrea Podczeck-Schweighofer

Tagungssekretäre:
Univ. Prof. Dr. Bernhard Metzler
Assoc. Prof. Dr. Daniel Scherr

impact of LIS LVAD implantation on perioperative outcomes after cardiac transplantation.

Methods: A retrospective comparison of 44 patients after LIS or conventional (FS) LVAD implantation (LIS: $n=24$, conventional: $n=20$ patients) undergoing heart transplantation between 01/14 and 10/18 was performed. The groups were comparable with regard to preoperative patient characteristics (mean age 58 ± 11 years FS vs. 57 ± 8 years LIS, $p=0.559$; 85% male FS vs. 83% male LIS, $p=0.880$; MELD-XI Score 10 ± 5 FS vs. 10 ± 4 LIS, $p=0.917$).

Results: Early mortality rates did not differ between the two groups (0% 30-day mortality in both groups and 10% in-hospital mortality FS vs. 4% LIS). We observed a significant reduction in the perioperative use of packed red blood cells (PRBCs) in the LIS group (4.88 ± 2.88 Units vs. 8.55 ± 6.78 Units; $p=0.033$). Revision for bleeding was necessary in two patients of the FS group ($p=0.201$). There was a trend to a decrease of catecholamine dosage within the first 24 h after arrival on the ICU in the LIS group.

Conclusions: LIS LVAD implantation simplifies subsequent heart transplantation and reduces perioperative blood product use. In bigger cohorts, the observed differences might become significant.

C-30

Benefit of extracorporeal membrane oxygenation in myocardial infarction-induced cardiogenic shock

Elfriede Ruttmann-Ulmer[1], Julian Wagner[1], Hannes Abfalterer[1], Marion Dietl[2], Christina Tiller[3], Christoph Brenner[4], Grimm Michael[1], Peter Mair[4], Judith Martini[4], Hanno Ulmer[5]

[1]University Hospital for Cardiac Surgery, Department of Surgery, Medical University of Innsbruck, Innsbruck, Austria
[2]Department of Plastic and Reconstructive Surgery, Landeskrankenhaus Feldkirch, Feldkirch, Austria
[3]University Hospital for Internal Medicine III (Kardiology and Angiology), Medical University of Innsbruck, Innsbruck, Austria
[4]University Hospital for Anaesthesia and Intensive Care, Medical University of Innsbruck, Innsbruck, Austria
[5]Department of Medical Statistics, Informatics and Health Economics, Innsbruck Medical University, Innsbruck, Austria

Background: Extracorporeal membrane oxygenation (ECMO) is frequently used for emergency support in patients with profound cardiogenic shock (CS) of all etiologies. However, no controlled study investigating ECMO in myocardial infarction-induced CS is available.

Methods: A total of 476 patients with AMI-induced CS (ICD codes: R57: cardiogenic shock; I21.9: acute myocardial infarction) were investigated. One hundred twenty seven patients (26.7%) received emergency veno-arterial ECMO support, 349 patients did not receive mechanical circulatory support. Patients were propensity score matched based on relevant clinical factors at admission such as age, gender, and the IABP shock II score at admission in the cath lab. Propensity score matching revealed 127 matched pairs.

Results: Mean age of patients was 65.0 ± 12.3 years and mean Syntax score was 25.9 ± 7.3 in the full unmatched patient population. Survival at 1, 3 and 5 years after CS was 45.6%, 43.5%, and 41.3% in the ECMO group and 17.4%, 15.8%, and 14.9% in the full unmatched control group (log-rank: $p<0.001$). After propensity score matching, 1, 3, and 5 year survival was 14.4%, 13.5%, and 11.2% in the matched control group ($p<0.001$). Cox regression analysis identified ECMO support (HR: 2.57; 95% CI: 1.89–3.50; $p<0.001$), completeness of revascularization (HR: 1.89; 95% CI: 1.74–2.34, $p=0.003$), previous CPR (HR: 0.67; 95% CI: 0.49–0.92, $p=0.013$), and high IABP-SHOCK II scores (HR: 0.74; 95% CI: 0.44–0.98, $p=0.005$) to be independent predictors for long term survival.

Conclusions: Extracorporeal life support by ECMO significantly increased survival in patients with AMI-induced CS. ECMO insertion increased survival probability 2.57 fold and should be considered as first line treatment in patients with AMI-induced CS.

C-31

Combined use of a semi-rigid mitral ring and a balloon expandable transcatheter valve for the treatment of mitral regurgitation in a patient with severe annular calcification

Adel Sakic, Can Gollmann-Tepeköylü, Johannes Holfeld, Michael Grimm, Nikolaos Bonaros, Ludwig Müller

University Hospital for Cardiac Surgery, Department of Surgery, Medical University of Innsbruck, Innsbruck, Austria

Background: A 76-year-old female patient presents with progressive dyspnea (NYHA III) and severe leg edema. The patient used to be physically very active in recent years. However, during the last 6 months symptoms have been progressive. Currently, she experiences angina and palpitations after 50 meters of walking. Besides that she presents in a good general condition. ECG shows normofrequent atrial fibrillation which has been present for several years. The patient is currently under coumarin therapy (CHA_2DS_2-VASc = 5, HASBLED = 2). In 2009, the patient underwent a biological aortic valve replacement (Carpentier Edwards Magna Ease 21 mm) plus single CABG procedure (vein graft to right coronary artery). In 2009 she had an endarterectomy procedure of the right carotid artery. The patient has a history of arterial hypertension, hypercholesterinemia and osteoporosis.

Methods: Transthoracic echocardiography showed severe mitral valve regurgitation with mild stenosis, mild tricuspid regurgitation and adequate function of the aortic valve prosthesis with preserved left ventricular function. Subsequent transesophageal echocardiography confirmed the mitral valve pathology with thickened valve leaflets, calcification of the mitral annulus, mild mitral stenosis (mean pressure gradient of 5 mmHg, mitral valve orifice area 2.4 cm^2) and a severe mitral regurgiation (Carpentier type IIIa/b, EROA 0.32 cm^2, RV 60 ml). The Tricuspid annulus measures 41 mm in diameter. Left ventricular dimensions are regular (LVEDD 49 mm) with ventricular ejection fraction of 54%. The left atrium is mildly dilated with 44 mm diameter, calculated systolic pulmonary arterial pressure is elevated to 60 mmHg. Coronary angiography showed perfect graft patency and no signs of coronary artery disease progression. For further diagnostic evaluation, the patient underwent a CT scan. It revealed massive calcifications of the mitral annulus with maximum intensity in the region of the posterior commissure (up to 1.3 cm thickness) expanding to A3 and A2 segments and the myocardium. Due to progressive symptoms and severe mitral regurgitation with preserved left