Methods: A consecutive series of 164 terminal HF patients in NYHA functional class IV and ACC/AHA stage D undergoing mechanical bridging by extracorporeal membrane oxygenation (ECMO) and ventricular assist device (VAD) was studied to investigate independent predictors for the development of subsequent ALF.

Development of ALF was defined by the Kings College for ALF. Clinical conditions of patients with ECMO and laboratory parameters at the timepoint of device implantation were assessed by means of multivariate logistic regression analysis. The study was approved by the local Institutional Review Board.

Results: A total of 45 HF patients (27.4%) developed subsequent ALF with a hospital mortality of 88.4% (40 patients).

In uni-variant analysis, neither duration of HF (new-onset, transient, or chronic, p=0.84), nor the ethnicity of HF (ischemic or non-ischemic, p=0.82) were associated with subsequent ALF. Previous cardiopulmonary resuscitation (CPR) or implementation under CPR were also not predictive for ALF. In contrast, the number of previous cardiac decompensations, the need for hemofiltration at bridging were highly associated with subsequent ALF (p<0.001). Hemodynamic parameters, such as MAP (p=0.005), mPAP (p=0.042), but not CVP, PCWP or cardiac index were associated with later ALF. Liver specific laboratory parameters such as cholinesterase, INR, total bilirubine, antithrombin III, lactate and pH (all p<0.01) but not transaminases were predictive for ALF. In multivariate analysis, however, antithrombin III was the most relevant parameter indicating onset of profound ALF (Wald: 11.8; Relative Risk (RR): 0.84; 95% Confidence Interval (CI): 0.77–0.93, p<0.001). Additionally, the need for hemofiltration at bridging (Wald: 4.7; RR: 8.6, 95% CI: 1.2–61.2, p=0.031) and repeated decompensations (Wald: 4.0; RR: 6.7, 95% CI: 1.1–43.0, p=0.046) were independent predictors for ALF.

Conclusion: Beside preexisting renal failure and repeated decompensations, decreased antithrombin III revealed to be the most relevant predictor for hepatic sequelae in patients with cardiogenic shock resistant to conservative therapy. As antithrombin III is not routinely used marker in clinical practice, it should be implemented into cardiologic practice to prevent HF patients from fatal ALF.

P5100 | BENCH Evaluation of graft patency after coronary artery bypass grafting by using stress echocardiography combined with strain imaging
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Background: Vasodilator stress echocardiography is a non-invasive tool which allows evaluation of a detailed coronary flow reserve integrated with myocardial wall motion analysis. In the present study we aimed to evaluate the value of velocity vector imaging (VVi) –based strain imaging, combined with dipyridamole stress echocardiography for assessment of left internal mammary artery (LIMA) graft patency in patients who underwent robotic-assisted coronary artery bypass graft (CABG) surgery.

Methods: We studied 40 patients (age 59.25±9.61 years, 58% male) who had robotic-assisted CABG surgery for LIMA-left anterior descending (LAD) artery and scheduled for coronary angiography. VVi-based strain echocardiography combined with dipyridamole stress echocardiography was performed. Left ventricular (LV) myocardial motion was evaluated using global strain and strain rate measurements. Additionally, Doppler evaluation of flow reserve of each LIMA graft was assessed.

Results: Echocardiographic findings were compared with angiographic data. Among 40 patients only 7 had graft stenosis, based on angiography. We observed fair agreement between VVi combined stress echocardiography results and identification of 50%-100% LIMA stenosis. Impairment in LV global strain and strain rate values at peak dose dipyridamole predicted LIMA graft patency (p=0.02 for strain and p<0.0001 for strain rate). The average coronary flow reserve (CFR) value of all the LIMA grafts was 1.28±0.05. The agreement between CFR value and graft patency did not reach statistical significance (p=0.307).

Conclusions: An integrated assessment of LV wall motion and flow reserve of LIMA graft in patients who underwent robotic-assisted CABG surgery is an accurate rate approach for identifying graft stenosis. This combined technique provides a useful tool for the non-invasive determination of LIMA graft patency, after CABG operation.

P5101 I BEDSIDE Coronary microvascular dysfunction is an independent predictor of the new onset of coronary epicardial stenosis in heart transplant patients
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Purpose: Cardiac allograft vasculopathy (CAV) is the main limiting factor of long-term survival after heart transplantation (HT). CAV affects both epicardial coronary vessels and microvasculature. We aimed to assess whether the risk of CAV and severe microvascular disease is associated with time from heart transplantation (HT) and the validity of coronary flow reserve (CFR) as a predictor of CAV onset.

Methods: CVR was assessed in the left anterior descending coronary artery by transhepatic echocardiography in 153 HT patients (122 male, age 51±12 years at HT), at 7.6±4 years post-HT. CAV was defined according to ISHLT definition. Microvascular dysfunction was defined as CFR ≤ 2.5. Rejection scores (RS) on endomyocardial biopsy were calculated. The relationship between time from HT and CAV or microvascular dysfunction was evaluated by logistic regression. To evaluate CAV new onset coronary angiography was repeated after 3.5±1.9 years in 107 patients.

Results: CAV was diagnosed in 46 patients (30%) (group A), 107 (70%) had no CAV (group B). Group A had lower CFR than group B (2.2±0.6 vs 3.0±0.8, p<0.001). In 24 pts (22%) with and without CAV CFR was ≤ 2.5, At 9, n= 100, the time from HT the probability of CFR ≤ 2.5 resulted higher than CAV probability (p<0.0001 for all comparisons). In addition, a close correlation was observed between the presence of CAV and the evidence of CFR ≤ 2.5 (OR 3.3, p<0.0001).