by era (Figure 1C). Multivariable regression identified PVR (OR 1.12, 95% CI 1.02–1.23, p=0.02), aortic insufficiency (OR 1.43, 95% CI 1.02–2.06, p=0.04) and concomitant procedures (OR 1.67, 95% CI 1.01–2.77, p=0.046) to predict worse survival. Larger left ventricular cavity size was protective (OR 0.73, 95% CI 0.57–0.92, p=0.01).

Conclusion: This is the largest experience of CF LVADs, along with long term survival data, at a single center. The patient profile is markedly higher risk than published multi-centre INTERMACS Registry. Early survival has improved in recent era and is similar to INTERMACS Registry. Late survival is encouraging. Aortic insufficiency and concomitant procedures increase mortality. Elevated PVR and small LV cavity size should be avoided.

Gender Differences in Mechanical Circulatory Support - Insights From a European Registry

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Purpose: Mechanical circulatory support (MCS) is an established treatment option for patients with end-stage heart failure. Although there are numerous reports identifying sex-specific differences with respect to progression and prognosis of heart failure, little is known about gender differences in indication and outcome for patients with ventricular assist devices (VAD). Therefore, data from the EUROMACS registry were analyzed.

Methods: Between January 2011 and June 2014, a total of 1006 consecutive VAD patients were submitted to the EUROMACS registry. Demographic data, underlying cardiac diseases, and outcomes were analyzed for gender differences.

Results: In this European cohort, 168 (16.7%) patients were female and 838 (83.3%) patients were male (p<0.001). ECMC was less frequent in female patients (41, 24.4%) than in male patients (372, 44.4%; p<0.001). At the time of VAD implantation, female patients were younger than male patients (48±17yrs vs. 52±12yrs, p<0.001). Women presented in a more critical clinical state for VAD implantation. They show a higher incidence of perioperative RV failure and worse long-term survival. We urge that referral strategies and implant timing be revised for female patients to improve their MCS outcome.

Characteristics and Outcomes in Patients Receiving Mechanical Circulatory Support With a History of Diabetes

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Purpose: This study compares patients receiving durable mechanical circulatory support (MCS) with severe diabetes (sDB) to those without sDB.

Methods: INTERMACS participants enrolled between 5/2012 and 3/2014 were stratified by sDB status. Pre-implant demographics, clinical characteristics, and laboratory values and post-implant adverse event rates were compared. Survival outcomes were analyzed using Kaplan-Meier survival analysis, competing outcomes, and risk adjusted parametric hazard modeling.

Results: Of the 4672 patients analyzed, 435 (9.3%) had sDB (as diagnosed by the treating hospital). Patients with sDB were more likely to be older, white, INTERMACS Level 3 (stable but not isotope dependent), have additional comorbidities, and be destination therapy. Patients with sDB were less likely to be listed for transplant. The unadjusted three month survival was 90% for both patients with or without sDB. But after three months, patients with sDB had a worsening survival (see figure, p=0.04). After adjusting for known risk factors for MCS mortality, the early hazard ratio [HR(95%CI)] for sDB patients compared to those without sDB was 0.8 (0.6, 1.1) and the late HR was 2.4 (1.4, 4.1). When simultaneously considering the outcomes death, transplant, and recovery, the one year estimated outcomes for sDB patients are 64.3% alive on a device, 23.8% death on a device, 11.2% transplant, and 0.7% ventricular recovery; while the one year estimates for patients without sDB are 63.6% alive on a device, 18.4% death on the device, 17.4% transplant, and 0.7% ventricular recovery (p=0.002).

Conclusion: MCS patients with and without sDB have similar early survival, but over time the sDB patients experience a comparatively worse survival. At one year, sDB patients are more likely to die on the device and less likely to receive a transplant. This may be due to sDB patients having other comorbidities. These findings should be taken into account when sDB are considered for destination therapy.

Inclusion of Cognitive and Mood Domains in the Assessment of Frailty Enhances Outcome Prediction in Patients Undergoing Ventricular Assist Device Implantation

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METHODS: INTERMACS - Kaplan-Meier survival by Severe Diabetes Status - Primary Prespective Implants: May 2012 to March 2014

INTERMACS - Kaplan-Meier survival by Severe Diabetes Status - Primary Prespective Implants: May 2012 to March 2014

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**Purpose:** Frailty has emerged as an independent predictor of survival in elderly heart failure patients. Its predictive value in younger patients undergoing “bridge to transplant” (BTT) ventricular assist device (VAD) implantation has not been reported. The aim of this study was to assess the prognostic importance of frailty in patients undergoing BTT VAD implantation.

**Methods:** Beginning in 2013, all patients with advanced heart failure (AHF) undergoing VAD implantation have undergone assessment of physical frailty (Fried phenotype, FP), cognition (Montreal Cognitive Assessment, MOCA) and depression (Depression in Medical Illness, DMI). We assessed the value of the FP (FP > 3/5 = frailty) and a novel frailty measure derived from FP, MOCA and DMI (mFP > 3/7 = frailty) in predicting outcome.

**Results:** 27 patients (20M:7F; age 53 ± 2 years, range 32-71; Intermacs I-IV 15:III 5) were followed for a median of 244 days post frailty assessment and 212 days post VAD implant. 20 patients were implanted with Heartware LVADs and 7 with HeartWare BiVADs. Using FP, 17 were non- or pre-frail (NPF) and 10 were frail. Using mFP, 14 were NPF and 13 were frail. Frailty was independent of age, Intermacs Class and renal function. Frailty (by FP or mFP) was associated with hypoalbuminemia and mortality (Figure). 90 day mortality was 0% in non- or pre-frail patients versus 33 + 14% in frail patients as assessed by mFP. Frail patients also had a trend to longer ICU stay (median 20 vs 7 days, p=0.07) and significantly longer hospital stay (55 vs 28 days, p=0.01).

**Conclusion:** In BTT VAD patients, frailty is common and strongly predictive of early mortality and prolonged hospitalisation. Frailty assessment is useful in identifying patients at high risk of early mortality and this relationship is strengthened with the inclusion of cognitive dysfunction and depression.

**Survival stratified by Frailty Status**

**Kaplan-Meier survival estimates**

**Device Malfunction in Contemporary Rotary Blood Pumps: The Relevant Burden of All Components**

**Purpose:** Hepatic dysfunction secondary to elevated right heart filling pressures is common in patients receiving left ventricular assist devices (LVAD). The aim of this study was to assess clinical outcomes in patients who developed postoperative liver dysfunction.

**Methods:** From 2005 to 2014, 270 patients with heart failure underwent implantation of HeartMate II LVAD at a single center. Postoperative liver dysfunction (PLD) was defined as either transaminase elevation (AST/ALT > 3 times normal) and/or hyperbilirubinemia (> 3 times normal).

**Results:** Of 270 patients, 14 with preoperative liver dysfunction were excluded. There were no significant differences in preoperative characteristics among patients with and without PLD. 137 (53.5%) patients did not develop PLD (GROUP 0), 119 (46.5%) patients had PLD: 16 (13.4%) had isolated transaminase elevation (GROUP 1), 69 (58.0%) had isolated hyperbilirubinemia (GROUP 2) and 34 (28.6%) had both abnormalities (GROUP 3). The 30 day, 6 month and 1 year mortality for patients with both abnormalities (GROUP 3) was significantly higher than the other groups (p<0.001). GROUP 3 patients had higher incidence of dialysis, prolonged ventilation and prolonged pressor usage (p<0.001). In addition, RV failure and bleeding requiring re-exploration were observed in 27% and 50% of the patients in GROUP 3, respectively. The odds of mortality with postoperative combined transaminasemia-hyperbilirubinemia was 4.6 times than that among patients without PLD (p<0.001).

**Conclusion:** Isolated hyperbilirubinemia is common after LVAD implantation and is not associated with increased postoperative mortality. However, postoperative combined transaminasemia-hyperbilirubinemia is associated with a significant increase in short and mid-term morbidity and mortality among LVAD patients. Strategies to prevent RV failure and bleeding may improve outcomes in these patients. Further research into pathogenesis of postoperative liver dysfunction is essential to improve outcomes.

**Device Malfunction in Contemporary Rotary Blood Pumps: The Relevant Burden of All Components**

**Purpose:** Recent reports on rotary blood pump device malfunction (DM) have focused on failure of the blood pump; however the entire system, including the controller and peripherals, is subject to wear and the true rate of overall