What’s New in MCS

July 2016

Alexander M. Bernhardt, MD
Ventricular Assist Devices and Heart Transplantation
University Heart Center Hamburg, Germany
Al.bernhardt@uke.de

Reviews:

Donor Oversizing Results in Improved Survival in Left Ventricular Assist Device Patients.
Schumer EM, Black MC, Rogers MP, Trivedi JR, Birks EJ, Lenneman AJ, Cheng A, Slaughter MS.
ASAIO J. 2016 Jun 1

The UNOS database was queried for patients transplanted after being bridged with or without left ventricular assist device (LVAD). Those groups were further subdivided for donor:recipient body mass index (BMI) ratios < 0.8 (undersized), ≥ 0.8 and ≤1.2 (matched), and > 1.2 (oversized). The authors found that LVAD patients who receive a donor heart oversized by at least 20% have improved survival post-transplantation. Additionally, donor undersizing in patients without a LVAD appears to be safe. Despite the increasing number of patients with advanced heart failure, the number of donor organs has remained stable. Furthermore, the patient population with LVADs awaiting heart transplantation is increasing steadily. This has led physicians to accept donor organs that may not be ideal for an individual recipient, including those organs that may be a size mismatch for the recipient. The findings from this study help to better allocate organs and this may decrease mortality for patients on the wait list and after cardiac transplantation.

Effect of CYP2C9 and VKORC1 Gene Variants on Warfarin Response in Patients with Continuous-Flow Left Ventricular Assist Devices (CF-LVADs).

The authors characterized the prevalence of CYP2CP/VKORC1 mutations in 80 CF-LVAD patients and to analyzed the impact of these mutations on warfarin dose response in the early post-implantation period. The authors found gene variants for CYP2C9 and VKORC1 (-1639 G>A), especially in European-American CF-LVAD recipients. Furthermore, VKORC1 genotype predicted INR response and warfarin dose requirements in the early post-implantation period. CF-LVAD patients are of risk for both, bleeding and thrombotic events. Warfarin genotype data has the potential to predict these adverse events in genetically susceptible individuals. This may in the future guide physicians in the optimal treatment of each individual patient, potentially reducing these adverse events once an association between these mutations and adverse events has been found.

OTHER ARTICLES IN JUNE 2016
ASAIO JOURNAL:


Acute biventricular interaction in pediatric patients with continuous or pulsatile flow LVAD: a simulation study.

Optimization of Centrifugal Pump Characteristic Dimensions for Mechanical Circulatory Support Devices.
Korakianitis T, Rezaienia MA, Paul GM, Rahideh A, Rothman MT, Mozafari S.

Electron microscopy as a tool for assessment of anticoagulation strategies during extracorporeal life support: the proof is on the membrane.
Beely BM, Campbell JE, Meyer A, Langer T, Negaard K, Chung KK, Cap AP, Cancio LC, Batchinsky AI.

A Case Series of Acute Myocardial Infarction in Left Ventricular Assist Device-Supported Patients.
Goddishala A, Nassif ME, Raymer DS, Hartupee J, Ewald GA, LaRue SJ, Vader JM.

Journal of Cardiac Failure:

Left Ventricular Assist Devices or Inotropes for Decreasing Pulmonary Vascular Resistance in Patients with Pulmonary Hypertension Listed for Heart Transplantation.
Al-Kindi SG, Farhoud M, Zacharias M, Ginwalla MB, ElAmm CA, Benatti RD, Oliveira GH.

Screening for Outflow Cannula Malfunction of Left Ventricular Assist Devices (LVADs) With the Use of Doppler Echocardiography: New LVAD-Specific Reference Values for Contemporary Devices.

Circulation Heart Failure:

No MCS related articles in June 2016

European Journal Heart Failure:

Myocardial recovery with mechanical circulatory support.
Chaggar PS, Williams SG, Yonan N, Fildes J, Venkateswaran R, Shaw SM.

Journal of Thoracic and Cardiovascular Surgery:

Did you like Terminator 3 better than Terminator 2? "Rise of machines" with HeartMate 3?
Takayama H.
Lower-extremity complications with femoral extracorporeal life support.

Venovenous extracorporeal membrane oxygenation and single-ventricle patients: A good match?
Chai PJ.

Knife saves life.
Takayama H.

Journal of American College of Cardiology:

Rogers JG.

Diagnosis and Treatment Algorithm for Blood Flow Obstructions in Patients With Left Ventricular Assist Device.