What's New in MCS

May 2014 MCS Journal Review

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Annals of Thoracic Surgery
No VAD related articles in MAY

Journal of American College of Cardiology- Heart Failure
No VAD related articles

Circulation
No VAD related articles in MAY

European Heart Journal
No VAD related articles in MAY

Journal of Cardiac Surgery

1. Benassi F, Vezzani A, Vignali,L, Gherli, T. Ultrasound Guided Femoral Cannulation and Percutaneous Perfusion of the Distal Limb for VA ECMO.
J Card Surg. 2014 May; 29; 427-29.
http://onlinelibrary.wiley.com/doi/10.1111/jocs.12319/abstract

2. *Demirozu ZT, Hernandez R, Mallidi, HR, Singh, SK, Radovancevic R, Segura A, Etheridge WB, Cohn WE, Frazier OH. HeartMate II Left Ventricular Assist Device Implantation in Patients with Advanced Hepatic Dysfunction. J. Card Surg 2014 May; 29:419-23.
http://onlinelibrary.wiley.com/doi/10.1111/jocs.12318/abstract

Journal of Heart and Lung Transplant

1. *Nascimbene A, Hernandez R, George JK, Parker A, Bergeron AL, Pradhan S, Vijayan KV, Civitello A, Simpson L, Nawrot M, Lee V, Mallidi HR, Delgado RM, Dong JF, Frazier OH. Association between cell-derived microparticles and adverse events in patients with nonpulsatile left ventricular devices. JHLT 2014 May; 33(5)470-477.
http://download.journals.elsevierhealth.com/pdfs/journals/1053-2498/PIIS1053249814000175.pdf

   REVIEW:
   Nascimbene et al report the significance of phosphatidyl-serine (PS) microparticles in the blood of patients with LVADS. Clinical and pathologic effects of high sheer stress

generated by the LVAD leads to cell apoptosis and the release of these microparticles. PS microparticles can activate the coagulation cascade and can induce vascular injury. This prospective single institutional study enrolled 20 patients who were undergoing LVAD placement and 10 healthy volunteers. Blood was drawn at specified time points and extensive platelet activity assays, and the presence of microparticles was evaluated. Adverse events were defined according to INTERMACS adverse event definitions.

This pilot study links levels of microparticles to adverse outcomes in LVAD supported patients and indicates that these levels may be used to predict the occurrence and severity of future adverse events. This pilot study shows that all post-implant events in this cohort occurred in patients with a microtiter >3%.

2. **Stueber M, Larbalestier R, Jansz P, Zimpfer D, Fiane AE, Tsui S, Simon A, Schmitto JD, Khaghani A, Wieselthaler GM, Najarian K, Schueler S. Results of the post-market registry to evaluate the HeartWare left ventricular assist system. JHLT 2014 May; 33 (5) 486-491. http://download.journals.elsevierhealth.com/pdfs/journals/1053-2498/PIIS1053249814008705.pdf

REVIEW:
In results from the pivotal international CE Mark Trial of the HeartWare system, the survival rates during support were 90%, 84% and 79% at 6, 12, and 24 months. This study supports these previously reported results with data from the Registry to Evaluate the HeartWare Left Ventricular Assist System (ReVOLVE Registry), a prospective, post-market registry of patients receiving the HartWare system at nine centers in Europe and Australia.

ReVOLVE was an investigator-initiated registry of commercial implants from 2009-2012. The primary outcome was success through the follow up period. Secondary endpoints included incidence of major adverse events.

A total of 314 commercial implants were studied. The success rates were 87%, 85%, 79% and 73% respectively at 6-, 12-, 24- and 36 month follow up. The most common cause of death was multi-organ failure accounting for 7.1% of the deaths and overall mortality on support was 43/254 or 16.9%. The most common adverse event was bleeding, occurring in 28% of patients and driveline infection occurred in 6%. Strokes occurred in 8% of patients, which is less than the CE Mark trial, which reported a stroke rate of 12%. Pump thrombosis occurred in 6.7%.

Overall conclusions, similar to the CE Mark Trial, HeartWare survival was excellent and adverse event rates were lower. Driveline infection rate was lower than the CE Mark trial, possibly secondary to an infection protocol that some of the centers had started. The stroke rate was also lower in the ReVOLVE study with only 8% of patients suffering from a stroke while in the CE Mark study 12% of patients had a stroke. The rates of pump thrombosis were also lower in the ReVOLVE study. This data may reflect a difference in the anti-coagulation regimen used on these patients.

The major limitation of this study was related to the retrospective nature of this registry. There could be differences in selection and patient management as well as reporting inconsistencies.

3. Schettle SD, Pruthi RK, Pereira NL. Continuous-flow left ventricular assist devices and gastrointestinal bleeding: Potential Role of Danazol. JHLT 2014 May; 33(5) 549-550. http://www.sciencedirect.com/science/article/pii/S105324981400953X