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Reviews:

Increased Need for Right Ventricular Support in Patients with Chemotherapy-Induced Cardiomyopathy Undergoing Mechanical Circulatory Support: Outcomes from the INTERMACS Registry. Oliveira GH, Dupont M, Naftel D, Myers SL, Yuan Y, Tang WH, Gonzalez-Stawinski G, Young JB, Taylor DO, Starling RC. *J Am Coll Cardiol.* 2013 Oct 10.

This study aimed to investigate the use of durable mechanical circulatory support (MCS) in patients with chemotherapy-induced cardiomyopathy (CCMP) and compare their outcomes to other patients with end-stage heart failure treated similarly. Data of 3812 MCS patients were searched from June 2006 and March 2011 in the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) database for the diagnosis of CCMP. Characteristics, outcomes and survival between CCMP patients, patients with non-ischemic and ischemic cardiomyopathies (NICMP and ICMP, respectively) were compared. A total of 75 (2%) from 3812 patients were identified. Patients with CCMP were overwhelmingly female (72% vs. 24% vs. 13%, $p=0.001$), had MCS more often implanted as destination therapy (DT) (33% vs. 14% vs. 22%, $p=0.03$), required more right ventricular assist device (RVAD) support (19 vs. 11 vs. 6, $p=0.006$), and had higher risk of bleeding ($p=0.001$). Survival of CCMP patients was similar to that of other groups.

This study further confirms that CCMP is a relatively uncommon indication for MCS in the current era (2%). Although CCMP patients have a similar survival rate compared to NICMP and ICMP patients, they tend to have more postoperative bleeding complication and higher rate of postoperative right ventricular failure. This paper highlights the importance of better preoperative preparation and tuning of the right ventricle in CCMP patients to lower their postoperative risk of right ventricular failure.

Heart transplantation with or without prior mechanical circulatory support in adults with congenital heart disease. Maxwell BG, Wong JK, Sheikh AY, Lee PH, Lobato RL. *Eur J Cardiothorac Surg.* 2013 Oct 17.

This study investigated the effects of pretransplant mechanical circulatory support (MCS) on perioperative and post-transplant outcomes in adult patients with congenital heart disease (ACHD) population. Scientific Registry of Transplant Recipients data on all adult heart transplants from September 1987 to September 2012 ($n = 47\,160$) were classified based on primary diagnosis codes as CHD or non-CHD and MCS or non-MCS. Demographic, procedural, outcome and survival variables were compared between MCS and non-MCS ACHD patient groups. MCS was used in 83 (6.8%) ACHD patients compared with 8625 (18.8%) patients without CHD ($P < 0.001$). MCS as a fraction of ACHD transplants increased over time ($P = 0.002$). MCS patients spent more time on the wait list, had a

higher baseline serum creatinine and were more likely to be male, status 1A, hospitalized, in the ICU and/or on a ventilator prior to transplant. However, MCS patients experienced equivalent short-term survival (30-day mortality = 10.8% in MCS vs 13.5% in non-MCS, P = 0.62) and overall survival by Kaplan-Meier analysis (P = 0.57). MCS patients had a longer post-transplant length of stay and were more likely to be transfused, but otherwise had no significant differences in adverse outcomes.

Recent analyses establish that heart transplantation is increasing among ACHD population. This study shows that MCS is less commonly used in adult CHD patients compared with all patients undergoing heart transplant, but has been increasing over time. It appears that within the ACHD population, patients with MCS have a higher risk profile, but except for increased transfusion rate and longer length of stay, do not experience less favourable post-transplant outcomes.

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