

What's New in MCS

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In-Hospital Cardiopulmonary Arrests in Patients with Left Ventricular Assist Devices

[http://www.onlinejcf.com/article/S1071-9164\(14\)01251-2/fulltext](http://www.onlinejcf.com/article/S1071-9164(14)01251-2/fulltext)

Garg S, Ayers CR, Fitzsimmons C, Meyer D, Peltz M, Bethea B, Cornwell W, Araj F, Thibodeau J, Drazner MH. J Card Fail 2014;20:899-904.

Advanced cardiac life support guidelines do not address resuscitation of patients with continuous-flow (CF) left ventricular assist devices (LVAD) and significant uncertainties exist regarding the appropriate response to cardiopulmonary arrest in LVAD patients. Relevant questions include how to identify inadequate perfusion in patients who often do not have a palpable pulse and how to appropriately treat ventricular arrhythmias that are often tolerated better hemodynamically than in patients without mechanical support. Finally, there is uncertainty whether it is safe to perform chest compressions in patients who have an LVAD.

Garg and colleagues performed a retrospective review of 111 CF-LVADs implanted at University of Texas Southwestern Medical Center between January 1, 2011 and October 31, 2013. Sixteen of these patients had an in-hospital cardiac arrest. They were compared with a matched cohort of patients without LVADs who had an in-hospital cardiac arrest during the same time period. At the time of arrest, a variety of techniques were initially used to assess arterial perfusion in the LVAD cohort including palpation of a pulse, Doppler measurement of pulse, and arterial line measurement of mean arterial pressure. Nine of the 16 LVAD patients received CPR. However, the median time to CPR was significantly longer in the LVAD patients (1 min vs < 1 min, P = 0.03) with documented reasons for the delay described as difficulty assessing perfusion and uncertainty about the safety of CPR in patients with an LVAD. Two patients (both of whom received CPR in < 2 min) who survived the arrest had follow-up echocardiograms that did not detect dislodgement of the LVAD cannula. None of the LVAD patients receiving CPR survived to hospital discharge, compared with 5 patients (23%) receiving CPR in the non-LVAD group.

The authors highlight that even in an experienced setting, there is uncertainty on how to approach resuscitation in the LVAD population. While CPR is not contraindicated in these patients, there is

concern that it could lead to cannula dislodgement and LVAD manufacturers recommend decisions on its use be left to physicians. Additionally, the effectiveness of CPR in LVAD patients is unknown (especially in the setting of an over sewn aortic valve). While the authors are unable to answer the numerous questions associated with CPR in LVAD patients, their paper serves as an initial characterization of the problem and they present a practical algorithm to help guide resuscitation and potential future investigation.

Functional Status in Left Ventricular Assist Device–Supported Patients: A Literature Review

[http://www.onlinejcf.com/article/S1071-9164\(14\)01191-9/fulltext](http://www.onlinejcf.com/article/S1071-9164(14)01191-9/fulltext)

Abshire M, Dennison Himmelfarb CR, Russell SD. J Card Fail 2014;20:973-83.

The authors provide an excellent review of the evidence of the effect of left ventricular assist device (LVAD) therapy on functional status. In general, patients supported by LVADs have significant improvements in NYHA functional class during the first year of therapy. Most of the functional gains occur in the first 6 months, but overall performance remains considerably reduced compared with age-adjusted norms

Ventricular Assist Devices: A Review of Psychosocial Risk Factors and Their Impact on Outcomes

Bruce CR, Delgado E, Kostick K, Grogan S, Ashrith G, Trachtenberg B, Estep JD, Bhimaraj A, Pham L, Blumenthal-Barby JS. J Card Fail 2014;20:996-1003.

ASAIO J – Nov/Dec Issue reviewed by Dr. Cotarlan last month

Journal of Thoracic and Cardiovascular Surgery – No articles

Journal of the American College of Cardiology – No articles

Circulation Heart Failure – No December Issue

European Journal of Heart Failure – No articles