

Hanan B. AlBackr, MD

Advanced Heart Failure &
Transplantation

King Saud University
Riyadh, Saudi Arabia

halbackr@gmail.com

halbackr@ksu.edu.sa

Reviews:

Depending on the pre-existing condition of the right ventricle (RV), left ventricular assist device (LVAD) implantation may have a detrimental effect on RV function, subsequently leading to right heart failure. Left ventricular assist devices (LVADs) are safer and provide better survival and better quality of life than biventricular assist devices (BVADs) but end-stage heart failure often involves both ventricles, even if its initial cause was left-sided heart disease. Right ventricular failure (RVF) is also a severe complication in about 25% of patients receiving an LVAD, with high perioperative morbidity (renal, hepatic or multi-organ failure) and mortality. Patients who receive an RV assist device (RVAD) only days after LVAD insertion fare much worse than those who receive an RVAD simultaneously with LVAD implantation. Temporary RVAD support in LVAD recipients with high risk for postoperative RVF can avoid permanent BVAD support. Thus, patients who definitely need a BVAD should already be identified preoperatively or at least intra-operatively.

1- ASAIO Journal:

Right Ventricular Failure Post LVAD Implantation Corrected with Biventricular Support: An In Vitro Model , Shehab, Sajad; Allida, Sabine M.; Davidson, Patricia M.; Newton, Phillip J.; Robson, Desiree; Jansz, Paul C.; Hayward, Christopher S. [January/February 2017 - Volume 63 - Issue 1 - p 41-47](#)

Right ventricular failure after left ventricular assist device (LVAD) implantation is associated with high mortality. Management remains limited to pharmacologic therapy and temporary mechanical support. Delayed right ventricular assist device (RVAD) support after LVAD implantations associated with poorer outcomes. With the advent of miniaturized, durable, continuous flow ventricular assist device systems, chronic RVAD and biventricular assist device (BiVAD) support has been used with some success. The purpose of this study was to assess combined BiVAD and LVAD with delayed RVAD support within a four-elemental mock circulatory loop (MCL) simulating the human cardiovascular system. Our hypothesis was that delayed continuous flow RVAD (RVAD) would produce similar hemodynamic and flow parameters to those of initial BiVAD support. Using the MCL, baseline biventricular heart failure with elevated right and left filling pressures with low cardiac output was simulated. The addition of LVAD within a biventricular configuration improved cardiac output somewhat, but was associated with persistent right heart failure with elevated right-sided filling pressures. The addition of an RVAD significantly improved LVAD outputs and returned filling pressures to normal throughout the circulation. In conclusion, RVAD support successfully restored hemodynamics and flow parameters of biventricular failure supported with isolated LVAD with persistent elevated right atrial pressure.

OTHER ARTICLES IN January 2017

ASAIO JOURNAL:

LVAD Outflow Graft Angle and Thrombosis Risk

Aliseda, Alberto; Chivukula, Venkat Keshav; MCGah, Patrick; Prisco, Anthony R.; Beckman, Jennifer A.; Garcia, Guilherme J. M.; Mokadam, Nahush A.; Mahr, Claudius, [January/February 2017 - Volume 63 - Issue 1 - p 14-23](#)

Role of Thromboelastography Platelet Mapping and International Normalized Ratio in Defining "Normocoagulability" During Anticoagulation for Mechanical Circulatory Support Devices: A Pilot Retrospective Study

Volod, Oksana; Lam, Lee D.; Lin, Gloria; Kam, Clarice; Kolyouthapong, Kristica; Mac, Jessica; Mirocha, James; Ambrose, Peter J.; Czer, Lawrence S. C.; Arabia, Francisco A, [January/February 2017 - Volume 63 - Issue 1 - p 24-31](#)

Is Stopping Heparin Safe in Patients on Extracorporeal Membrane Oxygenation Treatment?

Chung, Yoon Sang; Cho, Dai Yun; Sohn, Dong Suep; Lee, Wang Soo; Won, Hoyoun; Lee, Dong Hoon; Kang, Hyun; Hong, Joonhwa, [January/February 2017 - Volume 63 - Issue 1 - p 32-36](#)

Time in Therapeutic Range for Left Ventricular Assist Device Patients Anticoagulated With Warfarin: A Correlation to Clinical Outcomes

Halder, Laura C.; Richardson, Laura B.; Garberich, Ross F.; Zimbwa, Peter; Bennett, Mosi K. [January/February 2017 - Volume 63 - Issue 1 - p 37-40](#)

CRRT Connected to ECMO: Managing High Pressures

de Tymowski, Christian; Augustin, Pascal; Houissa, Hamda; Allou, Nicolas; Montravers, Philippe; Delzongle, Alienor; Pellenc, Quentin; Desmard, Mathieu, [January/February 2017 - Volume 63 - Issue 1 - p 48-52](#)

The Effect of Geometry on the Efficiency and Hemolysis of Centrifugal Implantable Blood Pumps

Mozafari, Sahand; Rezaenia, Mohammad A.; Paul, Gordon M.; Rothman, Martin T.; Wen, Pihua; Korakianitis, Theodosios, [January/February 2017 - Volume 63 - Issue 1 - p 53-59](#)

1/16/17

Journal of Cardiac Failure:

No MCS related articles in January 2017

Circulation Heart Failure:

[Tissue Expander as a Routine Component of 50cc Total Artificial Heart Implantation for Bridge to Transplant.](#)

Avery R, Paidy SR, Keller R Jr, Lick S, Smith RG, Khalpey Z. Circ Heart Fail. 2017 Jan;10(1):e003765. doi: 10.1161/CIRCHEARTFAILURE.116.003765.

[Left Ventricular Assist Device Explantation Evaluation Protocol Using Comprehensive Cardiopulmonary Exercise Testing](#)

Johannes Steiner, Stephanie Wiafe, Janice Camuso, Katherine Milley, Luke T. Wooster, Cole S. Bailey, Sunu S. Thomas, David A. D'Alessandro, Jose P. Garcia, Gregory D. Lewis, Circulation: Heart Failure. 2017;10:e003694,

European Journal Heart Failure:

No MCS related articles in January 2017

JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY

Extracorporeal membrane oxygenation for the treatment of postcardiotomy shock Glenn J. R. Whitman, MD

The Journal of Thoracic and Cardiovascular Surgery, January 2017

Off-pump implantation of the HeartMate 3 left ventricular assist device through a bilateral thoracotomy approach

Evgenij V. Potapov, MD, PhD,^{a,b} Marian Kukucka, MD, PhD,^a Volkmar Falk, MD, PhD,^{a,b,c} and Thomas Krabatsch, MD, PhD,^{a,b} Berlin, Germany , The Journal of Thoracic and Cardiovascular Surgery January 2017

Intra-aortic balloon pump therapy negatively affects flow through a continuous-flow left ventricular assist device

Dipanjan Banerjee, MD, MS,^a Chun Choi, MD,^b and Richard Ha, MD,^b Stanford, Calif, The Journal of Thoracic and Cardiovascular Surgery c Volume 153, Number 1

JOURNAL OF AMERICAN COLLEGE OF CARDIOLOGY, JACC Heart failure

Percutaneous Mechanical Circulatory Support Versus Intra-Aortic Balloon Pump in Cardiogenic Shock After Acute Myocardial Infarction

Dagmar M. Ouweneel, Erlend Eriksen, Krischan D. Sjauw, Ivo M. van Dongen, Alexander Hirsch, Erik J.S. Packer, M. Marije Vis, Joanna J. Wykrzykowska, Karel T. Koch, Jan Baan, Robbert J. de Winter, Jan J. Piek, Wim K. Lagrand, Bas A.J.M. de Mol, Jan G.P. Tijssen, José P.S. Henriques

Mechanical Support for Cardiogenic Shock

Lost in Translation?

Uwe Zeymer, Holger Thiele

Percutaneous Mechanical Circulatory Support Versus Intra-Aortic Balloon Pump for Treating Cardiogenic Shock, Meta-Analysis

Dagmar M. Ouweneel, Erlend Eriksen, Melchior Seyfarth, José P.S. Henriques