



**José González-Costello, MD**

Medical Coordinator of the Mechanical Circulatory Support Program  
Advanced Heart Failure and Heart Transplant Unit  
Department of Cardiology  
Hospital Universitari de Bellvitge,  
L'Hospitalet de Llobregat, Barcelona, Spain  
E-Mail: [jgonzalez@bellvitgehospital.cat](mailto:jgonzalez@bellvitgehospital.cat)

**Reviews:**

**Relation of preoperative serum albumin levels to survival in patients undergoing left ventricular assist device implantation.** Kato TS, Kitada S, Yang J, Wu C, Takayama H, Naka Y, Farr M, Mancini DM, Schulze PC. *Am J Cardiol.* 2013 Nov 1;112(9):1484-8.\*\*

This article studied the association of hypoalbuminemia (<3.5 g/dl) with mortality in 272 patients undergoing left ventricular assist device implantation at a single institution. Survival after LVAD surgery was better in patients with normal albumin levels compared with those with hypoalbuminemia before surgery (3 and 12 months: 93.2% vs 82.4% and 88.4% vs 75.2%, respectively,  $p < 0.001$ ). Multivariate analysis revealed that preoperative albumin was independently associated with mortality.

What is more interesting is how the authors analyzed the dynamics in postoperative albumin levels to investigate the effect of changes in albumin levels during LVAD support on post-LVAD survival. Patients with pre-operative hypoalbuminemia and postoperative normalization of albumin levels ( $n = 81$ ) showed improved survival compared with those who remained hypoalbuminemia ( $n = 44$ ) or those who had decreasing albumin levels during LVAD support ( $n = 40$ ; 3-month survival: 92.6% vs 63.6% and 65.0%;  $p < 0.01$ ). In conclusion, preoperative hypoalbuminemia is associated with poor prognosis after LVAD surgery but what's new is that postoperative normalization of albumin is associated with improved survival. Therefore albumin behaves like a biomarker and we must direct our attention to this easily determined parameter. Correcting nutrition, inflammation, and hepatic function could be an effective way to improve prognosis in patients evaluated for LVAD implantation or who are on LVAD support.

**Morphologic changes in the aortic wall media after support with a continuous-flow left ventricular assist device.** Segura AM, Gregoric I, Radovancevic R, Demirozu ZT, Buja LM, Frazier OH. *J Heart Lung Transplant.* 2013 Nov;32(11):1096-100.\*\*

This study aimed to determine if the reduced pulse pressure that occurs in patients who receive prolonged continuous-flow ventricular support affects aortic wall morphology. Samples from the ascending aorta were obtained from 11 patients with severe heart failure at the time of LVAD implantation. Matched specimens from the distal ascending aorta, remote to the aortic anastomotic site were obtained at explantation after heart transplantation ( $n = 5$ ) or autopsy ( $n = 6$ ). The mean duration of support was  $140 \pm 136$  days. The histologic evaluation and comparison of specimens obtained before and after LVAD support showed significantly increased foci of medial degeneration, smooth muscle cell depletion, elastic fiber fragmentation, medial fibrosis and atherosclerotic changes after LVAD support. Mean medial thickness was not significantly different after LVAD support.

These results give us an insight on how continuous flow LVADs can alter the aortic wall media. Given the fact that the use of LVADs as destination therapy is increasing, further studies are needed to determine the long-term functional consequences of continuous flow on the arterial wall.

### ***Journal of Heart and Lung Transplantation***

1. Cassidy J, Dominguez T, Haynes S, Burch M, Kirk R, Hoskote A, Smith J, Fenton M, Griselli M, Hsia TY, Ferguson L, Van Doorn C, Hasan A, Karimova A. A longer waiting game: bridging children to heart transplant with the Berlin Heart EXCOR device—the United Kingdom experience. *J Heart Lung Transplant*. 2013;32(11):1101-6. \*\*
2. Cabrera AG, Sundareswaran KS, Samayoa AX, Jeewa A, McKenzie ED, Rossano JW, Farrar DJ, Frazier OH, Morales DL. Outcomes of pediatric patients supported by the HeartMate II left ventricular assist device in the United States. *J Heart Lung Transplant*. 2013;32(11):1107-13. \*
3. Hermsen JL, Smith JW, Mokadam NA. Self-administration education and polypharmacy in mechanical circulatory support patients. *J Heart Lung Transplant*. 2013;32(11):1141-2.
4. Gelow JM, Song HK, Weiss JB, Mudd JO, Broberg CS. Organ allocation in adults with congenital heart disease listed for heart transplant: impact of ventricular assist devices. *J Heart Lung Transplant*. 2013 Nov;32(11):1059-64.\*\*
5. Segura AM, Gregoric I, Radovancevic R, Demirozu ZT, Buja LM, Frazier OH. Morphologic changes in the aortic wall media after support with a continuous-flow left ventricular assist device. *J Heart Lung Transplant*. 2013 Nov;32(11):1096-100.\*\*
6. Fender E, Tripuraneni A, Henrikson CA. Dual defibrillation for refractory ventricular fibrillation in a patient with a left ventricular assist device. *J Heart Lung Transplant*. 2013 Nov;32(11):1144-5.
7. Adataya S, Masri C, John R, Eckman P. Loading conditions influence reliability of the echocardiographic RAMP test in continuous-flow left ventricular assist devices. *J Heart Lung Transplant*. 2013 Nov;32(11):1142-4. \*
8. Ren D, Rodriguez L, Blau L, Bruckner B, Loebe M. Lung procurement from a donor with a long-term left ventricular assist device. *J Heart Lung Transplant*. 2013 Nov;32(11):1145-6.

### ***Annals of Thoracic Surgery***

1. Byrnes JW, Prophan P, Williams BA, Schmitz ML, Moss MM, Dyamenahalli U, McKamie W, Morrow WR, Imamura M, Bhutta AT. Incremental reduction in the incidence of stroke in children supported with the Berlin EXCOR ventricular assist device. *Ann Thorac Surg*. 2013;96(5):1727-33.

### ***Journal of Cardiac Surgery***

1. Atluri P, Fairman AS, MacArthur JW, Goldstone AB, Cohen JE, Howard JL, Zalewski CM, Shudo Y, Woo YJ. Continuous flow left ventricular assist device implant significantly improves pulmonary hypertension, right ventricular contractility, and tricuspid valve competence. *J Card Surg*. 2013 Nov;28(6):770-5.\*
2. Bartoli CR, Demarest CT, Khalpey Z, Takayama H, Naka Y. Current management of left ventricular assist device erosion. *J Card Surg*. 2013 Nov;28(6):776-82.

### ***American Journal of Cardiology***

1. Sarsam SH, Meyers DE, Civitello AB, Agunanne EE, Odegaard P, Cohn WE, Frazier OH. Trauma in patients with continuous-flow left ventricular assist devices. *Am J Cardiol*. 2013 Nov 1;112(9):1520-2. \*

2. Kato TS, Kitada S, Yang J, Wu C, Takayama H, Naka Y, Farr M, Mancini DM, Schulze PC. Relation of preoperative serum albumin levels to survival in patients undergoing left ventricular assist device implantation. *Am J Cardiol.* 2013 Nov 1;112(9):1484-8.\*\*

### ***Journal of the American College of Cardiology Cardiovascular Imaging***

1. Fine NM, Topilsky Y, Oh JK, Hasin T, Kushwaha SS, Daly RC, Joyce LD, Stulak JM, Pereira NL, Boilson BA, Clavell AL, Edwards BS, Park SJ. Role of echocardiography in patients with intravascular hemolysis due to suspected continuous-flow LVAD thrombosis. *JACC Cardiovasc Imaging.* 2013 Nov;6(11):1129-40.\*

### ***Pediatric Critical Care Medicine***

1. Bartoli CR, Koenig SC, Ionan C, Gillars KJ, Mitchell ME, Austin EH 3rd, Gray LA, Pantalos GM. Extracorporeal membrane oxygenation versus counterpulsatile, pulsatile, and continuous left ventricular unloading for pediatric mechanical circulatory support. *Pediatr Crit Care Med.* 2013;14(9):e424-37. \*

### ***European Journal of Cardiothoracic Surgery***

1. Mohite PN, Zych B, Popov AF, Sabashnikov A, Sáez DG, Patil NP, Amrani M, Bahrami T, DeRobertis F, Maunz O, Marczin N, Banner NR, Simon AR. CentriMag short-term ventricular assist as a bridge to solution in patients with advanced heart failure: use beyond 30 days. *Eur J Cardiothorac Surg.* 2013;44(5):e310-5. \*
2. Fleck T, Benk C, Klemm R, Kroll J, Siepe M, Grohmann J, Hohn R, Humburger F, Beyersdorf F, Stiller B. First serial in vivo results of mechanical circulatory support in children with a new diagonal pump. *Eur J Cardiothorac Surg.* 2013;44(5):828-35. \*

### ***International Journal of Artificial Organs***

1. Throckmorton AL, Tahir SA, Lopes SP, Rangus OM, Sciolino MG. Steady and transient flow analysis of a magnetically levitated pediatric VAD: Time varying boundary conditions. *Int J Artif Organs.* 2013 Nov 20;36(10):693-9.

### ***Artificial Organs***

1. da Silva BU, Jatene AD, Leme J, Fonseca JW, Silva C, Uebelhart B, Suzuki CK, Andrade AJ. In vitro assessment of the Apico Aortic Blood Pump: anatomical positioning, hydrodynamic performance, hemolysis studies, and analysis in a hybrid cardiovascular simulator. *Artif Organs.* 2013 Nov;37(11):950-3.
2. Leme J, da Silva C, Fonseca J, da Silva BU, Uebelhart B, Biscegli JF, Andrade A. Centrifugal blood pump for temporary ventricular assist devices with low priming and ceramic bearings. *Artif Organs.* 2013 Nov;37(11):942-5.
3. da Silva C, da Silva BU, Leme J, Uebelhart B, Dinkhuysen J, Biscegli JF, Andrade A, Zavaglia C. In vivo evaluation of centrifugal blood pump for cardiopulmonary bypass-Spiral Pump. *Artif Organs.* 2013 Nov;37(11):954-7.
4. Uebelhart B, da Silva BU, Fonseca J, Bock E, Leme J, da Silva C, Leao T, Andrade A. Study of a centrifugal blood pump in a mock loop system. *Artif Organs* 2013 Nov;37(11):946-9.

## ***Annals of Cardiac Anaesthesia***

1. Goudra BG, Singh PM. Anesthesia for gastrointestinal endoscopy in patients with left ventricular assist devices: initial experience with 68 procedures. *Ann Card Anaesth.* 2013 Oct-Dec;16(4):250-6.\*

## ***ASAIO Journal***

1. Krishnamoorthy A, Mentz RJ, Hyland KA, McMillan EB, Patel CB, Milano CA, Hernandez AF. A crisis of the heart: an acute reversible cardiomyopathy bridged to recovery in a patient with Addison's disease. *ASAIO J.* 2013;59(6):668-70.
2. Umakanthan R, Haglund NA, Stulak JM, Joyce LD, Ahmad R, Keebler ME, Maltais S. Left thoracotomy HeartWare implantation with outflow graft anastomosis to the descending aorta: a simplified bridge for patients with multiple previous sternotomies. *ASAIO J.* 2013;59(6):664-7.
3. Affronti A, di Bella I, Carino D, Ragni T. Levosimendan may improve weaning outcomes in venoarterial ECMO patients. *ASAIO J.* 2013;59(6):554-7.
4. Chamogeorgakis T, Rafael A, Shafii AE, Nagpal D, Pokersnik JA, Gonzalez-Stawinski GV. Which is better: a miniaturized percutaneous ventricular assist device or extracorporeal membrane oxygenation for patients with cardiogenic shock? *ASAIO J.* 2013;59(6):607-11. \*
5. Missov E. Left ventricular assist device inflow cannula thrombus: characterization with two-dimensional transthoracic echocardiography. *ASAIO J.* 2013 Nov-Dec;59(6):662-3.
6. Truong TV, Stanfield JR, Chaffin JS, Elkins CC, Kanaly PJ, Horstmanshof DA, Long JW, Snyder TA. Postimplant left ventricular assist device fit analysis using three-dimensional reconstruction. *ASAIO J.* 2013 Nov-Dec;59(6):586-92.
7. Stulak JM, Maltais S, Cowger J, Joyce LD, Daly RC, Park SJ, Aaronson KD, Pagani FD. Prevention of percutaneous driveline infection after left ventricular assist device implantation: prophylactic antibiotics are not necessary. *ASAIO J.* 2013 Nov-Dec;59(6):570-4. \*
8. Cheng A, Swartz MF, Massey HT. VADoscopy: a novel intraoperative technique to evaluate HeartMate II left ventricular assist device inflow obstruction and thrombosis. *ASAIO J.* 2013 Nov-Dec;59(6):671-4. \*
9. Takeda K, Naka Y, Yang JA, Uriel N, Colombo PC, Jorde UP, Takayama H. Timing of temporary right ventricular assist device insertion for severe right heart failure after left ventricular assist device implantation. *ASAIO J.* 2013 Nov-Dec;59(6):564-9. \*
10. Srivastava AV, Hrobowski T, Krese L, Huang MA, Nemeh H, Tita C, Williams C, Brewer R, Lanfear DE. High rates of false-positive hepatitis C antibody tests can occur after left ventricular assist device implantation. *ASAIO J.* 2013 Nov-Dec;59(6):660-1.\*
11. Huang F, Ruan X, Zou J, Qian W, Fu X. A fast building and effective hydraulic pediatric mock circulatory system for the evaluation of a left ventricular assist device. *ASAIO J.* 2013 Nov-Dec;59(6):575-85.

## ***Circulation Heart Failure***

1. Bouabdallaoui N, Akar RA, Ennezat PV, Aissaoui N, Jouan J, Bricourt MO, Grinda JM. Left ventricular assist device implantation induced tricuspid valve prolapse. *Circ Heart Fail.* 2013 Nov 1;6(6)

## ***Journal of Thoracic and Cardiovascular Surgery***

1. Atkins BZ, Hashmi ZA, Ganapathi AM, Harrison JK, Hughes GC, Rogers JG, Milano CA. Surgical correction of aortic valve insufficiency after left ventricular assist device implantation. *J Thorac Cardiovasc Surg.* 2013;146(5):1247-52.\*