

**Assessment of fluid-responsiveness parameters for off-pump coronary artery bypass surgery: a comparison among LiDCO, transesophageal echocardiography, and pulmonary artery catheter**

Belloni L, Pisano A, Natale A, Piccirillo MR, Piazza L, Ismeno G, De Martino G. *J Cardiothorac Vasc Anesth*. 2008 Apr;22(2):243-8. doi: 10.1053/j.jvca.2007.07.007. Epub 2007 Oct 29.

Objective: To verify the reliability of different markers of fluid-responsiveness during off-pump cardiac surgery (OPCAB).

Design: A clinical prospective, nonblinded, nonrandomized study.

Setting: A community hospital.

Participants: Nineteen patients.

Interventions: Pulmonary artery catheter (PAC), LiDCO (LiDCO, London, UK), and transesophageal echocardiography (TEE) parameters were measured before (t0) and after (t1) a fluid challenge was performed 20 minutes after induction of anesthesia, but before sternotomy and without inotropic infusion. A Student t test and Spearman test were performed for statistical analysis.

Measurements and main results: According to the variation of cardiac index after the fluid challenge (DeltaCI%), 2 groups of patients were identified: the responders (Re, DeltaCI% > 15%) and the nonresponders (nRe). Mean pulse pressure variation (PPV) and mean stroke volume variation (SVV) before the fluid challenge (t0) were significantly different between the 2 groups. No significant differences were shown in systolic pressure variation (SPV), left ventricular end-diastolic area, left ventricular end-diastolic volume, and peak changes of aortic flow (DeltaVAo). A statistically significant correlation was observed between DeltaCI% and PPV (R = 0.793), DeltaCI% and SVV (R = 0.809), and DeltaCI% and SPV (R = 0.766). No correlation with central venous pressure and pulmonary capillary wedge pressure was found.

Conclusions: Dynamic parameters of fluid responsiveness by LiDCO are highly sensitive for assessment of intravascular volume status during OPCAB surgery. In contrast, even if static parameters by TEE reflect changes in ventricular diastolic volume, they are poor indicators of fluid responsiveness. Surprisingly, no significant correlation between DeltaVAo (TEE) and DeltaCI% was found.