Letter to the Editor

Incomplete left ventricular unloading following left ventricular assist device implantation

Descarga incompleta del ventrículo izquierdo tras el implante de un dispositivo de asistencia ventricular izquierda

To the Editor,

The implications of abnormal hemodynamics following left ventricular assist device implantation is currently a cause of concern. Our team recently demonstrated the prognostic implications of abnormal hemodynamics in this cohort.[1] Ruiz-Cano et al.[2] demonstrated that several parameters were associated with such abnormal hemodynamics, particularly incomplete left ventricular unloading defined as pulmonary capillary wedge pressure > 15 mmHg. Several concerns have been raised.

The first concern is a 15-mmHg cutoff of pulmonary capillary wedge pressure.[2] There is no gold standard to define incomplete left ventricular unloading, but a promising way might be to statistically calculate a cutoff associated with clinical outcome.

Second, a key to explaining the prognostic impact of incomplete left ventricular unloading might be right ventricular failure. In the study by Ruiz-Cano et al., [2] incomplete left ventricular unloading was associated with elevated central venous pressure and a decreased pulmonary artery pulsatility index. Their study would be strengthened by analysis of further echocardiographic parameters associated with right ventricular function, including right ventricular fractional area change, tricuspid annular systolic excursion velocity, and right ventricular longitudinal strain.

For the time-to-event analysis, each event would be affected by the timing of day 0. The timing of right heart catheterization (ie, day 0) varied in each patient in their study.[2] To minimize bias, it might be better to add outcome data stratified by the timing of right heart catheterization.

The authors propose the level of B-type natriuretic peptide as an alternative to incomplete left ventricular unloading. It might be of interest to analyze the prognostic impact of B-type natriuretic peptide level. Of note, the level of B-type natriuretic peptide might be affected by several parameters, including right ventricular failure, age, renal impairment, and obesity.

The last concern is intervention in incomplete left ventricular unloading. Could the authors propose any appropriate intervention tools? In addition to the hemodynamic and echocardiographic ramp test to optimize device speed,[3] diuretics including tolvaptan, sacubitril/valsartan, and SGLT2 inhibitor might be promising.

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CONFLICTS OF INTEREST

None.

Teruhiko Imamura

Second Department of Internal Medicine, University of Toyama, Toyama, Japan

E-mail address: teimamu@med.u-toyama.ac.jp

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Incomplete left ventricular unloading following left ventricular assist device implantation. Response

Descarga incompleta del ventrículo izquierdo tras el implante de un dispositivo de asistencia ventricular izquierda. Respuesta

To the Editor,

We read with great interest the comments by Teruhiko Imamura on our study.[1]

A pulmonary capillary wedge pressure ≤ 15 mmHg was found to be a reliable indicator of normal left ventricular (LV) filling pressure and is a reference value in clinical guidelines to diagnose postcapillary pulmonary hypertension and to guide prognosis and management in selected patients with heart failure. Other authors have considered higher cutoff values of pulmonary capillary wedge pressure to define a normal LV filling pressure in patients with chronic heart failure treated with a left ventricular assist device (LVAD). However, there is currently no evidence that a different cutoff value could better predict prognosis in these patients.