

## **The impact of transesophageal echocardiography in left ventricular unloading with the Impella left ventricular assist device**

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### Objectives

To demonstrate the importance of transesophageal echocardiography (TEE) in guiding placement of the Impella left ventricular assist device (LVAD) and to assess biventricular function during left ventricular unloading

### Methods

TEE was used both in placing the Impella LD, either 2,5liter (4patients) or the 5liter (5patients), and to repeatedly assess biventricular function for therapeutic management. In all patients and during insertion and placement the guidewires and the Impella device were imaged and followed in the thoracic part of the thoracic descending aorta all the way to the left ventricle. The echocardiographer could report to the surgeon the potential hazards as persistent intimal rifts severe intimal plaque formations, if the guidewires entered the neck vessels and if the wires were stuck in Sinus Valsalva with the potential risk of jeopardizing the aortic valve.

After placement and start of LV unloading the function of both ventricles were assessed repeatedly. With special reference to the right ventricle some key aspects of function could be stressed as eventual new or worsening tricuspid valve regurgitation (RV overload and dysfunction), the movement of the right ventricular free wall (RV dysfunction), RV dimensions and the action of the intraventricular septum (septal shift and ventricular interdependence).

### Results

TEE had a major impact both on placing the Impella device and in assessing biventricular function. With the use of LVAD's the ventricular interdependence became evident. In this the role of the septal wall was found to be an important factor.

### Conclusions

TEE plays a major role as a diagnostic and monitoring tool in managing patient on LVAD's