**THE ROLE OF ECHOCARDIOGRAPHY IN THE MANAGEMENT OF PATIENTS UNDERGOING VENTRICULAR ASSIST DEVICE IMPLANTATION AND/OR TRANSPLANT SURGERY**

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*Background*: Heart transplantation (HTx) is a curative treatment for patients with advanced heart failure (HF); however, since transplant opportunity is severely limited due to donor shortage, left ventricular assist device (LVAD) has evolved into a standard therapy for patients awaiting HTx. The role of echocardiography as a primary imaging modality to monitor allograft function in transplant recipients as well as to optimize LVAD settings in LVAD recipients has been expanding.

*Purpose of the presentation*: (1) Echocardiography for rejection diagnosis. Conventional echo parameters can detect diastolic and/or systolic dysfunction associated with acute rejection; however, these parameters are not sufficiently reliable to guide the treatment strategy in asymptomatic/clinically stable recipients. Tissue-Doppler Imaging (TDI) and 2D speckle-tracking echocardiography (2D-STE)-derived LV torsion and strain parameters are expected to detect subclinical rejection. (2) Echocardiography for LVAD management: Conventional echocardiography allow us to monitor left and right ventricular dimensions, aortic valve opening, degree of mitral regurgitation, and cardiac output through RV out flow under LVAD support, which are the essential information for optimizing LVAD settings. We can also evaluate cannula flow, position and suctioning, as well as check any thrombus by using contrast as needed. Further, we recently published the usefulness of TDI and strain parameter to predict right ventricular failure after LVAD implantation in patients who were not planned to undergo biventricular support. RAMP study is very much useful for detecting LVAD malfunction, and we present a representative case in whom RAMP study enabled us to detect LVAD thrombus.

*Summary*: Echocardiography is a primary imaging modality in the assessment of cardiac structure and function. It can be performed at the patient’s bedside and repeatable, and the results are immediately available. Therefore, echocardiography is an essential tool for the management of patients before and after transplantation.