

## Heart transplantation

### Role of echocardiography

- Comprehensive baseline examination (soon after the transplantation) with normal findings assessment
- Detect acute allograft rejection
- Detect cardiac allograft vasculopathy
- Guide endomyocardial biopsies and assess their complications

**Normal echocardiographic findings** in transplanted heart (in the baseline examination after the transplantation)

- **Biatrial** dilatation
- Hyperechogenicity at biatrial anastomosis
- Pericardial effusion (small or loculated)
- Abnormal (in systole) or flat IVS motion
- Decreased interventricular thickening
- Increased LV posterior or septal thickness
- Increased LV mass (LVM) or LVM index
- Increased **RV** dimensions and thickness (Abnormal TAPSE could be misleading after cardiac surgery)
- Beat to beat variation of the mitral inflow pattern
- Mild pulmonic, tricuspid, or mitral regurgitation

### Recommendation

A baseline examination soon after the transplantation is strongly recommended for follow-up comparison

**Echocardiographic indicators of rejection** (compared to baseline or previous examination)

- **Progressive increase in wall thickness** > 4 mm (IVS & inferolateral wall)- is a quite specific finding related to heart transplant rejection. One of the first indications of the pathophysiologic process of progressive rejection is the interstitial myocardial oedema, which results in myocardial thickening.
- Increased myocardial echogenicity
- **Restrictive diastolic** pattern. Both the diastolic properties and the atrial contractility of a transplant heart are impaired. As a consequence the commonest mitral inflow pattern is a restrictive one.
- New or increasing pericardial effusion
- **New onset of MR/TR**
- >10% decrease in LVEF
- >10% decrease in e'
- 20% decrease in IVRT
- DSE to detect allograft vasculopathy
- Speckle tracking global/regional strain is promising

### Rejection

- A combination of two or more parameters may indicate rejection
- These indicators can be absent even in case of rejection proven by biopsies

