

Detection of Subclinical Right Ventricular Systolic Dysfunction in Patients with Mitral Stenosis by Two Dimensional Strain and Strain Rate Imaging

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Abstract :

Introduction: Right ventricular (RV) systolic dysfunction occurs early before clinical systemic congestion in patients with mitral stenosis (MS). Conventional echocardiographic techniques have some limitations in the assessment of RV function. **Aim of the work:** To evaluate the role of two dimensional (2D) longitudinal systolic strain and strain rate imaging in detection of subclinical RV systolic dysfunction in patients with moderate-severe MS. **Patients and methods:** Fifty patients with isolated MS (moderate-severe) and 30 healthy control subjects constituted the study population. Conventional echocardiography, pulsed wave tissue Doppler imaging (TDI) of the tricuspid annulus and 2D longitudinal segmental and global RV systolic strain (RV-GLS) and strain rate (RV-GLSr) measurements were obtained. **Results:** Patients with MS had significantly lower RV-GLS and RV-GLSr compared to control subjects (-19.67 ± 6.23 vs. -24.19 ± 3.25 , $P < 0.001$, and -1.49 ± 0.87 vs. -1.91 ± 0.56 , $P = 0.02$, respectively). **Conclusion:** Patients with MS had significantly lower 2D RV-GLS and RV-GLSr compared to control group. 2D RV-GLS and RV-GLSr imaging appear to be useful in detection of subclinical RV systolic dysfunction in patients with MS.

Keywords : *Strain; Strain rate; Mitral stenosis; Right ventricle; Systolic function*

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