

of left ventricular basal, papillary muscle and apical levels were measured in all subjects by 3D-STI from the apical full-volume image and compared between groups. LV ejection fraction (LVEF) was acquired from 3D-STI.

**Results** Despite normal LV systolic function as assessed by ejection fraction, mean global longitudinal strain (GLS) was significantly reduced in patients with isolated mild to moderate rheumatic MS ( $p < 0.05$ ). Regional analysis demonstrated that patients with MS had a significantly reduced 3D-regional peak strain in all basal, and some mid (inferior, anteroseptal, posteroseptal) segments of the left ventricle. For other segments 3D-regional peak strain values were similar among the groups. A Pearson correlate revealed that LV GLS corresponded with LVEF ( $r = 0.601$ ,  $p < 0.001$ ) in patients with isolated MS, and LV GLS correlated with LVEF in normal subjects ( $r = 0.709$ ,  $p < 0.001$ ).

**Conclusions** LV global 3D strain decreases in patients with pure mild to moderate rheumatic mitral stenosis in the sub-clinical period. 3D-STI can identify early abnormalities of LV systolic function in MS patients who had apparently normal LVEF.

GW23-e1304

**CLINICAL APPLICATION OF LEFT VENTRICULAR SYSTOLIC FUNCTION IN PATIENTS WITH RHEUMATIC MILD TO MODERATE MITRAL STENOSIS BY THREE-DIMENSIONAL ULTRASOUND SPECKLE TRACKING IMAGING**

doi:10.1136/heartjnl-2012-302920ad.37

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**Objectives** To assess left ventricular (LV) global and regional systolic function in patients with pure mild to moderate rheumatic mitral stenosis (MS) by 3-dimensional ultrasound speckle tracking imaging (3D-STI)

**Methods** Fifty patients with pure mild to moderate rheumatic MS were enrolled in this study, 40 normal subjects matched with age and sex were selected as control groups. LV 3D-global longitudinal peak systolic strain, 3D-regional peak systolic strain in 16 segments