dysfunction and a potential prognostic factor in asymptomatic patients with AS. However, the relation between GLS, AS severity and symptoms has not been fully evaluated.

**Methods:** Eighty-six patients (74±11 years, 35% female) with at least mild AS were prospectively enrolled. Clinical evaluation included the assessment of symptoms (angina, syncope, and dyspnea) and a physical examination. All patients had a comprehensive transthoracic echocardiography (TTE). GLS was measured offline using a dedicated station and software (EchoPac, General Electric) blinded of any clinical and TTE information.

**Results:** Forty-three patients (43%) were asymptomatic. AS range was wide with a mean aortic valve area (AVA) of 1.06±0.42 cm² [0.33-2.3] and 55 patients (64%) had a severe AS (AVA<1cm²). Mean EF was 63±6 and 8 patients (9%) and a reduced EF (<60%). We divided our population into 4 subgroups, asymptomatic non-severe AS (group 1), asymptomatic severe AS and normal EF (group 2), symptomatic severe AS and normal EF (group 3) and symptomatic severe AS and reduced EF (group 4). Overall GLS decreased from group 1 to 4 (p<0.0001) (Table) and a correlation between AS severity and GLS was observed (r=-0.40, p=0.0002). However, GLS was not significantly different between patients with symptomatic and asymptomatic severe AS (group 2 and 3, p=0.32).

**Conclusions:** In the present study we show that GLS was significantly correlated to AS severity and reduced in patients impaired EF. However, GLS was not different between patients with symptomatic and asymptomatic severe AS. These preliminary data deserve further confirmation but raise caution regarding the potential prognostic value of GLS in patients with asymptomatic AS.

<table>
<thead>
<tr>
<th>Group</th>
<th>GLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 (n=31)</td>
<td>-19.1±2.9</td>
</tr>
<tr>
<td>Group 2 (n=12)</td>
<td>-18.7±4.6</td>
</tr>
<tr>
<td>Group 3 (n=35)</td>
<td>-17.5±3.2</td>
</tr>
<tr>
<td>Group 4 (n=8)</td>
<td>-12.5±4.0</td>
</tr>
<tr>
<td>P between groups</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**116**

Myocardial function assessment for patients with severe organic mitral regurgitation

Carine Ridard, Annaik Bellouin, Gaëlle Kervio, Christophe Thebault, Philippe Malbo, Erwan Donal

**CHU de Rennes - Hôpital Pontchaillou, Centre Cardio-Pneumologique, Rennes, France**

**Objective:** Recovery of ventricular function after surgical correction of mitral regurgitation (MR) is an important clinical issue. The best timing for mitral valve surgery is sometimes controversial. We studied echocardiographic characteristics of left ventricular (LV) function in 80 patients with severe (regurgitant orifice area ≥ 40mm²) and preserved ejection fraction (LV EF ≥ 60%) and compared our finding with 30 normal controls similar in age, sex and body mass index.

**Methods:** We evaluated the controls and the organic MR patients at rest and during a standardized exercise stress echocardiography. Patients were imaged at rest and after 8 minutes of sub maximal exercise (heart rate [100-120 b/min]). All the echocardiograms were prospectively performed by the same team, the same echo-machine and protocol. It provided conventional echocardiographic indices but also new ones like the global longitudinal strain (GLS). All the echocardiograms were measured by one experienced (Level III) and one non-experienced operator (Level I) blinded of any clinical and TTE information.

**Results:** The LV volume were significantly larger in the MR group (diastolic: 134±39 ml vs 69±21; p=0.001; systolic 43±16 vs 25±9ml; p<0.001). At rest, the EF was 68±7 % in MR group vs 65±6 in the controls (p=0.005). E/e' was 13±6 vs 10±2; p=0.007; the global longitudinal strain (GLS) was 18±4% vs 21±3; p=0.01. During the exercise, the evolution of the GLS was clearly different in the MR group versus the controls. A slight or no increase in GLS was observed in the MR group: 19±8%. In opposes, the control’s GLS improved: 26±3 % during the exercise; p<0.001. If we considered GLS indexed to LV end diastolic volume, the difference in GLS was even greater. In comparison, exercise EF was none significantly different between groups (MR group 72±9% vs 75±7 controls, p=0.17).

**Conclusion:** Independently of the LV geometry changes, GLS appears to be a promising new index of LV systolic function in MR patients. Better than EF, especially during an exercise, GLS performed highly better than EF distinguishing LV characteristics of patients with a significant severe MR vs. controls. GLS might have to be tested to best select MR patients justifying an early repair to protect LV systolic competence.

**117**

Real-time 3D transoesophageal echocardiography evaluation of the mitral valve area in patients with mitral stenosis

Julien Dreyfus, Eric Brochet, Laurent Lepage, David Attiâas, Caroline Cuffe, Delphine Detaingt, Bernard Iung, Alec Vahanian, David Messika-Zeitoun

**CHU Bichat, Cardiologie, Paris, France**

**Aims:** Planimetry measured by two-dimensional transthoracic echocardiography (TTE, MVA_TTE) is the reference method for the evaluation of the severity of mitral stenosis (MS) but is significantly less reliable when performed by non-experienced operators and when transthoracic echocardiography is poor. Real-time three-dimensional transoesophageal echocardiography (RT3DTEE, MVA_RT3DTEE) may overcome those limitations but its accuracy has never been evaluated.

**Methods:** We prospectively enrolled 43 patients (59±15 years, 86% female) referred for MS evaluation who underwent the same day a TTE and a RT3DTEE. MVA_TTE was assessed by experienced operators, MVA_RT3DTEE was measured by one experienced (Level III) and one non-experienced operator (Level I) blinded of any clinical and TTE information. RT3DTEE images were digitally stored and analysed offline on a workstation using dedicated software (QLab Philips) in a random order. MVA_RT3DTEE was measured at the best cross section of the mitral valve defined as the most perpendicular and smallest orifice.

**Results:** MVA_TTE, measured by the experienced operator (1.07±0.31 cm² [range 0.45-1.85]) did not differ from and correlated well with MVA_RT3DTEE (1.08±0.32 cm² [range 0.54-2.00], r=0.84, r=0.71, p<0.001), and mean difference was small (-0.01±0.24 cm²). Similarly, the MVA_RT3DTEE measured by the non-experienced operator (1.03±0.31 cm² [range 0.45-1.69]) did not differ from and correlated well with MVA_TTE, r=0.27, r=0.06, p=0.001; mean difference -0.05±0.26 cm²). RT3DTEE mitro and interobserver (between experienced and non-experienced operators) variability were respectively 0.13±0.10 cm² and 0.19±0.14 cm².

**Conclusion:** RT3DTEE provides accurate and reproducible MVA measurements similar to 2D planimetry performed by experienced operators. Thus, RT3DTEE should be considered as an alternative tool for the evaluation of MS severity, especially in patients with poor echocardiographic windows or for team less accustomed to evaluate patients with MS.

**118**

Right heart function evolution after successful balloon mitral valvuloplasty

Saroumadi Adavane (1), Satheesh Santhosh (2), J Balachander (2), S Karthikeyan (2), Srim Rajagopal (2), Nabilan Haddour (1), Stéphane Ederhy (1), Ariel Cohen (1)

(1) Saint Antoine Hospital, Cardiology, Paris, France – (2) Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India

**Background:** The evolution of right ventricular function in patients with rheumatic mitral stenosis treated with balloon mitral valvuloplasty (BMV) is not clearly defined. The aim of this study was to assess the evolution of systolic, diastolic and global function of the right ventricle (RV) immediately and one month after BMV using a standard Doppler echocardiographic approach combined with tissue Doppler imaging (TDI).

**Methods:** Thirty three consecutive patients (70% women; age 31±8 years; range 19-45) with moderate to severe mitral stenosis (mitral valve area ≤1.5 cm²) in sinus rhythm who underwent successful BMV were included prospectively. Echocardiographic parameters of RV function were determined before BMV, 24 hours after BMV and one month after BMV and included pulsed wave TDI (S velocity, isovolumic relaxation time (IVRT), Tei index), tricuspid annular plane systolic excursion (TAPSE), RV fractional area change (RVFAC), and pulmonary vascular resistance (PVR). The control group included 14 healthy subjects (64% women, age 32±5 years; range 23-45).