**Abstract: P1482**

**Preclinical diastolic dysfunction assessed by left atrial strain and association with incident heart failure**

**Authors:**
E. Potter¹, S. Ramkumar¹, H. Yang², H. Kawakami¹, K. Negishi², T.H. Marwick¹,¹Baker IDI Heart and Diabetes Institute - Melbourne - Australia ,²Menzies Research Institute - Hobart - Australia ,

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**Background:** Left atrial strain in the reservoir phase (LASr) measures passive LA stretch and is a sensitive marker of left ventricular diastolic dysfunction (DD). However, reduced LASr has not been prospectively validated against clinical heart failure (HF) endpoints and its place in diastology evaluation is unclear.

**Aim:** We sought whether DD grades defined by previously validated ranges of LASr predicted incident HF and whether reclassifying indeterminate diastolic function based on reduced LASr could facilitate assessment of HF risk.

**Methods:** Community dwelling elderly subjects were recruited and underwent baseline clinical and echocardiographic assessment. Where imaging was suitable, speckle-tracking echocardiography assessed LASr and subjects were assigned DD grades based on published ranges: normal >35%, grade 1 24–35%, grade 2 19–24%, grade 3 <19%. Current ASE/EACVI recommendations were used to identify those with indeterminate function; LASr-defined DD (LASr-DD) was defined as LASr ≤23%. Follow-up was ≤2 years and incident HF adjudicated by Framingham criteria.

**Results:** Of 610 subjects (age 71±5 yrs., 46% male) LASr analysis was feasible in 590 (97%); average LASr was 39% (IQR 34–43%). Incident HF was associated with LASr-DD grade, occurring in 8 (36%) with grade ≥2, 14 (10%) with grade 1 and 39 (9%) with normal function (p<0.001). Adjusted odds ratio for incident HF for LASr-DD grade ≥2 was 5.7 (95% CI 2.26–14.5, p<0.001) Diastolic function was indeterminate in 147 (24%) subjects; of 144 (98%) with LAS analysis, 6 (75%) of those with LASr-DD vs. 15 (11%) with normal LASr experienced incident HF (p<0.001).

**Conclusion:** DD defined by LASr is predictive of HF for grades ≥2 independent of other diastolic measures. Indeterminate diastolic function with LASr ≤23% is associated with incident HF. LASr may complement current diastolic function assessment recommendations.

<table>
<thead>
<tr>
<th>LASr-DD grade:</th>
<th>Univariable</th>
<th>Multivariable*</th>
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<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>p-value</td>
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<tr>
<td>1</td>
<td>1.13 (0.59–2.15)</td>
<td>0.7</td>
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<tr>
<td>≥2</td>
<td>5.7 (2.26–14.5)</td>
<td>&lt;0.001</td>
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*Adjusted for age, hypertension, diabetes, BMI, global longitudinal strain, E/e', LA volume index, LV mass index (all p<0.1 on univariable analysis).
Incorporating LA strain in practice