Abstract: **P251**

**Fragmented QRS in prediction of ischemic heart disease diagnosed by stress cardiovascular magnetic resonance imaging**

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**Topic(s):**
Stress CMR

**Citation:**

**Funding Acknowledgements:**
None

**Background:**
Fragmented QRS complex (fQRS) on 12-lead EKG is not uncommon in general population. Previous studies found an association between fQRS and myocardial scar, heart failure, and increased cardiac mortality. However, data in adults without history of coronary artery disease is limited. We aimed to evaluate whether there is an association between fQRS and ischemic heart disease (IHD) diagnosed by stress cardiac MRI.

**Method:**
We retrospectively reviewed data from 604 patients who underwent stress cardiac MRI, in which 50 patients were excluded due to known history of coronary artery disease or incomplete stress test. A positive result was defined as stress-induced perfusion defect in at least 2 contiguous myocardial segments corresponding to epicardial coronary territory, or a presence of ischemic scar. The 12-lead EKG done on the same day with MRI, prior to stress testing, were analyzed. Fragmented QRS was defined as the presence of additional R wave (R'), notching in the nadir of R or S wave, or the presence of more than one R' in any EKG leads. Both cardiac MRI and EKG were analyzed by two independent observers.

**Result:**
Final analysis included 554 patients, 39% were male, with a mean age of 67.8 ± 11.1 years. There was positive stress cardiac MRI in 219 patients (39.5%). Older age, diabetes mellitus, and hypertension were more frequent in the positive group (p <0.05). fQRS was identified in 300 patients (54.2%). Baseline characteristic did not differ significantly between patients with and without fQRS. There is an association between fQRS and IHD, OR 1.605 (95% CI 1.136-2.269), p = 0.007. Using linear regression, the number of leads with presence of fQRS showed an association with IHD (OR 1.204, p = 0.005). After adjustment for age, diabetes, hypertension, renal function, and left ventricular ejection fraction, the strong association between fQRS and IHD persisted, OR 1.709 (95% CI 1.182-2.470), p = 0.004.

**Conclusion:**
In patients without known history of coronary artery disease, fragmented QRS is independently associated with ischemic heart disease diagnosed by stress cardiac MRI.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>OR</th>
<th>95% CI</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>1.013</td>
<td>0.992 - 1.035</td>
<td>0.234</td>
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<tr>
<td>Diabetes mellitus</td>
<td>1.532</td>
<td>1.032 - 2.274</td>
<td>0.034</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.194</td>
<td>0.737 - 1.935</td>
<td>0.471</td>
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<tr>
<td>GFR (ml/min/1.73m²)</td>
<td>0.999</td>
<td>0.987 - 1.011</td>
<td>0.904</td>
</tr>
</tbody>
</table>
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<tbody>
<tr>
<td>LV ejection fraction (%)</td>
<td>0.972</td>
<td>0.950 - 0.994</td>
<td>0.014</td>
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<tr>
<td>fragmented QRS</td>
<td>1.709</td>
<td>1.182 - 2.470</td>
<td>0.004</td>
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