reduction in mortality from cardiomyopathies and cardiac conduction disorders. Although PPCE is endorsed by large medical and sporting organisations, including the European Society of Sports Cardiology, the International Olympic Committee and FIFA, the state health system in the UK (and many other Western countries) does not support cardiovascular evaluation of athletes. Certain elite sporting organisations in the UK mandate PPCE in all athletes prior to competition. In 2010 the English Premier Rugby League introduced formal PPCE in all competing players.

Methods Athletes participating in the English Premiership Rugby Underwent PPCE with a structured clinical questionnaire and 12-lead ECG. Trans-thoracic echocardiogram (TTE) and additional investigations were performed where indicated.

Results A total of 606 players were assessed (mean age 22.9 years; range 15–57). Of these, 45 (7.4%) required TTE (55 (5.7%) due to ECG abnormalities; 5 (0.08%) due to family history of sudden death; 5 (0.08%) due to symptoms). ECG abnormalities warranting TTE included right axis deviation (n=4), left axis deviation (n=17), right bundle branch block (n=5), right ventricular hypertrophy (n=1), abnormal wave inversion (n=5) and prolonged QT (n=1). Six of the 45 subjects demonstrated mild changes on TTE (markedly dilated LV cavity (n=1), mitral regurgitation (n=1), pulmonary stenosis (n=1), dilated aortic root (n=1)), requiring serial surveillance. Five demonstrated abnormalities on TTE and/or ECG that warranted referral for further evaluation including exercise stress test (n=5), 24-h ECG (n=5) and cardiac MRI (n=3). The reasons for these tests included possible arrhythmogenic right ventricular cardiomyopathy (n=3), suspicion of hypertrophic cardiomyopathy (n=1) and QT prolongation on ECG (n=1). None of the players exhibited a cardiac disorder that warranted disqualification from sport. Overall 7.4% of athletes required further investigation following initial ECG, and 1.8% required further tests following TTE. False positive rate was 5.6%.

Conclusion Cardiovascular evaluation of British rugby players with a structured questionnaire and ECG resulted in clearance of 92.6% following initial tests, and 5.6% were reassured after TTE. Only 1% players required surveillance echocardiograms and 0.2% were referred for further diagnostic evaluation. False positive rate was 5.6%. The results indicate that PPCE carried out in an expert setting results in a relatively small number of athletes requiring further tests, and a low false positive rate.

Abstract 48 Table 1 Endothelial function and EPC

<table>
<thead>
<tr>
<th>Endothelial function</th>
<th>Placebo Baseline</th>
<th>Placebo 24 h</th>
<th>Placebo 72 h</th>
<th>Placebo 7d</th>
<th>Darbepoetin Baseline</th>
<th>Darbepoetin 24 h</th>
<th>Darbepoetin 72 h</th>
<th>Darbepoetin 7d</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMD%</td>
<td>3.5±0.80</td>
<td>3.4±0.73</td>
<td>2.9±0.63</td>
<td>3.4±0.75</td>
<td>3.5±0.92</td>
<td>4.4±0.97</td>
<td>5.2±0.9**</td>
<td>3.7±0.61</td>
</tr>
<tr>
<td>CD133+/VEGFR2+</td>
<td>110±17.6</td>
<td>117±19</td>
<td>101±19</td>
<td>123±21</td>
<td>146±13</td>
<td>180±13*</td>
<td>180±11*</td>
<td>182±16*</td>
</tr>
<tr>
<td>CD34+/VEGFR2+</td>
<td>4.1±0.6</td>
<td>3.9±0.5</td>
<td>3.1±0.6</td>
<td>4.7±0.8</td>
<td>8.7±3.07</td>
<td>11.1±3.9</td>
<td>7.1±1.4</td>
<td>13.3±4.5</td>
</tr>
<tr>
<td>CD34+/CD133+</td>
<td>17.3±2.9</td>
<td>17.0±1.9</td>
<td>17.7±3.6</td>
<td>20.4±3.2</td>
<td>23.6±2.4</td>
<td>29.3±4*</td>
<td>31.6±4.6*</td>
<td>29.9±4.8*</td>
</tr>
</tbody>
</table>

Values are means±SE. * p<0.05, ** p<0.01