Establishing a pathway for the diagnosis and management of arrhythmias in patients with pulmonary hypertension

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OBJECTIVES

1. Set up a clinical ICM service at Sheffield PVDU to improve access to remote continuous monitoring of arrhythmias in patients with PH and increase diagnostic accuracy in symptomatic patients.

2. Use knowledge obtained to determine a treatment pathway for arrhythmias that is specific to and safe the PAH population.

METHODS

We set up a clinical service allowing appropriate PH patients to be referred to us for an ICM (LinQ-Medtronic) for diagnosis and monitoring. Abnormal rhythms detected or symptomatic episodes are recorded by the device and a home monitor downloads daily to a secure server accessible by the clinical team.

A PH-specific treatment pathway was developed by the PH team and the cardiology team to standarise treatment for these patients. The pathway advises on anticoagulation, most appropriate antiarrhythmic drug use and allows access to the heart rhythm MDT and consideration for early catheter ablation.

RESULTS

October 2019 to April 2021 42 patients with PH has an ICM implanted.

Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>50±14.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>33 (79%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>37 (88%)</td>
</tr>
<tr>
<td>Idiopathic PAH</td>
<td>42 (100%)</td>
</tr>
<tr>
<td>NO responder</td>
<td>9 (22%)</td>
</tr>
<tr>
<td>NSR positive</td>
<td>10 (24%)</td>
</tr>
<tr>
<td>WHO FC I</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>WHO FC II</td>
<td>17 (40%)</td>
</tr>
<tr>
<td>WHO FC III</td>
<td>21 (50%)</td>
</tr>
<tr>
<td>WHO FC IV</td>
<td>3 (7%)</td>
</tr>
<tr>
<td>NT Pro BNP</td>
<td>1353±3001</td>
</tr>
<tr>
<td>Oral + nebs</td>
<td>5 (12%)</td>
</tr>
<tr>
<td>Triple oral therapy</td>
<td>5 (12%)</td>
</tr>
<tr>
<td>Oral + rebs</td>
<td>5 (12%)</td>
</tr>
<tr>
<td>Oral + prostandol</td>
<td>11 (26%)</td>
</tr>
</tbody>
</table>

New arrhythmias diagnosed by ICM monitoring

<table>
<thead>
<tr>
<th>New diagnosis</th>
<th>Number of patients</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial Flutter</td>
<td>3</td>
<td>Medication + Flutter ablation</td>
</tr>
<tr>
<td>Atrial tachycardia</td>
<td>2</td>
<td>Monitoring</td>
</tr>
<tr>
<td>Symptomatic frequent atrial ectopy</td>
<td>2</td>
<td>Observe</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>1</td>
<td>Medication + DCV</td>
</tr>
<tr>
<td>Symptomatic inappropriate sinus tachycardia</td>
<td>1</td>
<td>Observe</td>
</tr>
<tr>
<td>2:1 Heart block with syncope</td>
<td>1</td>
<td>Dual chamber pacemaker</td>
</tr>
</tbody>
</table>

So far we have collected 40.7 patient years of heart rate, heart rate variability, arrhythmia and physical activity data.

DISCUSSION

The use of ICM technology in our PH population has allowed continuous, remote monitoring of symptomatic patients referred to Sheffield Pulmonary Vascular Disease Unit. Symptoms are correlated to ICM data enabling quick diagnosis of arrhythmia or symptoms secondary to PH. Patients diagnosed with an arrhythmia now have a PH-specific treatment pathway enabling streamlined, guideline-directed treatment.

CONCLUSIONS

We have successfully set up a clinical ICM service for PH patients in Sheffield enabling an increased diagnostic certainty for symptomatic patients. Those diagnosed with an arrhythmia are no treated using a PH-specific treatment algorithm enabling safe, guideline-directed management and access to specialist cardiology care.

REFERENCES
