James Cook University Hospital

Streamlining the pathway for patients identified in surgical pre admission clinics (PAC) with previously undetected atrial fibrillation.

Why was this project implemented?

The Cardiac Rhythm Management (CRM) team at James Cook University Hospital (JCUH) manage patients with atrial fibrillation (AF) across a number of different settings. Patients with more complex needs are managed within the tertiary centre within doctor/nurse led services whilst those requiring more straightforward management are cared for in the community via a nurse led outreach service. All services are delivered and coordinated by the JCUH arrhythmia team. The overall aim across both settings is to initiate timely and effective management for this patient group. In 2015 a concern was raised relating to significantly delayed pathways for patients identified in general surgical pre admission clinics with previously undetected AF. It was apparent that there was no dedicated pathway in place for these patients leading to significant delays in appropriate management of AF/stroke risk assessment/Oral Anticoagulation (OAC) as well as often unnecessary delayed/cancelled surgical procedures. On review it was evident that there were delays of up to 12 weeks from detection of AF to first assessment by the arrhythmia team. Patients were being referred back to their GP by the surgical pre admission team following cancellation/postponement of their surgical procedures and then onward referred by the GP for specialist opinion from the JCUH arrhythmia team.

What does the project involve?

A multidisciplinary stakeholder group was formed led by the JCUH CRM team. The group had representation from consultants and specialist nurses from CRM, general surgery, anaesthetics and pre admission as well as General Practitioner (GP) and Care Commissioning Group (CCG) representation. A pathway (fig: 1) was developed utilising all available resources and it was agreed that the pathway would be implemented in December 2015 as a 3 month pilot. The CRM nurse team agreed to monitor the numbers of patients identified and the impact this had on their current workload. A standardised letter (fig: 2) was also developed with clear guidance for the GP in terms of any future management required. Packs were put together to enable timely attendance at PAC which include patient information leaflets, standardised letter and 24hr ambulatory ECG monitor. It was also identified that there was a lack of confidence in making ECG diagnoses from some of the pre admission team. Two ECG workshops were therefore organised by the CRM nurses with good attendance from the surgical pre admission team.

The pathway highlights a clear strategy for managing these patients which includes the following:

- If previously undetected AF is identified or patients attend with known AF and rapid ventricular response the CRM nurse team are contacted and attend. They confirm the diagnosis on ECG and then initiate any management required.
- Stroke risk and bleeding assessment are performed and recommendations made regarding OAC and monitoring. The standardised letter is completed and a copy given to the patient
and one sent to the GP. Recommendations for changes to medical regime are faxed directly to the GP. Patient education is provided both verbally and in the form of AFA patient information booklets along with the contact number for the CRM nurse helpline.

- 24 hour ambulatory ECG monitoring is initiated when required with results going to the CRM nurse team. Rate control is initiated by the team when necessary and follow up is arranged in the community outreach clinics in the next available appointment when necessary.
- The CRM team liaise with the surgical pre admission/anaesthetic team and patient GP with recommendations of fitness for planned surgery.

**What results have you seen?**

In the first three months the CRM team were contacted for advice eighteen times. The reasons for contacting the team varied and included confirmation of diagnosis of AF through ECG analysis, assessment of previously undetected AF and stroke risk stratification and management of known AF with rapid ventricular response. The project was evaluated at this point and a decision made to continue. Over a six month period 26 patients in total were identified as needing input from the CRM team. Results over a six month period are highlighted below.

<table>
<thead>
<tr>
<th>Patients with known AF with rapid ventricular response</th>
<th>Patients with previously undetected AF</th>
<th>Patients requiring new initiation of OAC</th>
<th>Patients with known AF identified as not being appropriately anti coagulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>11</td>
<td>11</td>
<td>2</td>
</tr>
</tbody>
</table>

**Other ECG findings**

<table>
<thead>
<tr>
<th>ECG finding</th>
<th>Numbers</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial flutter</td>
<td>1</td>
<td>Same pathway as for patients with AF followed</td>
</tr>
<tr>
<td>Atrial tachycardia</td>
<td>1</td>
<td>Rate control recommended and patient reviewed in community arrhythmia clinic</td>
</tr>
<tr>
<td>Complete heart block</td>
<td>2</td>
<td>Patient admitted for pacemaker implant</td>
</tr>
<tr>
<td>Sinus rhythm with atrial ectopy</td>
<td>3</td>
<td>Reassurance given to patient and to surgical pre admission nurses</td>
</tr>
<tr>
<td>Pre excitation</td>
<td>1</td>
<td>Referral to cardiology for further assessment recommended</td>
</tr>
</tbody>
</table>

As well as the two admissions for patients found to have complete heart block one patient with AF and rapid ventricular response was admitted to cardiology due to haemodynamic compromise.
All patients were seen by the CRM nurses within 20 minutes of initial contact. Patients had waited up to 12 weeks prior to the new service. Stroke risk stratification was performed at that point and recommendations made to anticoagulate where necessary.

During the project it was also identified that there was a lack of confidence in ECG analysis amongst the surgical pre admission team. Two ECG workshops were therefore held which were delivered by the CRM nurses. Evaluation of this has shown an increase in confidence and ECG analysis skills for those that attended.

Key improvements following the introduction of the pathway are:

- Patients previously waiting up to 12 weeks for stroke risk stratification/initiation of anticoagulation. Now seen and managed within 20 minutes at point of detection of AF
- Patients with AF rapid ventricular response receiving timely assessment and management
- Reduction in delayed/cancelled surgical procedures
- Increased ECG analysis skills within the surgical pre admission clinic team
- Improved communication between general surgery and cardiology
- Improved communication between primary and secondary care
Patient attends Surgical PAC & is found to have previously undetected AF

Patient attends Surgical PAC & is found to have AF with rapid ventricular response

Contact CRM Team on 52806/ Bleep 2352

CRM Team attend +
Confirm AF on ECG
Perform Chads VASC /HAS BLED Risk assessment + make recommendations OAC (If planned surgery <7 days ahead anti coagulate post surgery)
Complete GP Letter - give copy to patient & post to GP practice, advise patient to see GP
Assess patient symptoms
Provide Patient with verbal & written information re AF management & treatment
Fit 24 hr ambulatory ECG monitoring
Document details of assessment in patient notes

CRM team attend +
Confirm AF on ECG
If HR is 90 or above fit ambulatory ECG monitoring for 24 hrs
Assess patient symptoms
Check that CHADS VASC/ HAS BLED assessment has been performed & that patient is appropriately anti coagulated (If planned surgery <7 days ahead anti coagulate post surgery)
Complete GP Letter - give copy to patient & send a copy to GP practice with details of any recommended changes to medical therapy
Document details of assessment in patient notes

Ambulatory ECG confirms ventricular rate of 90 bpm or more

Book patient into arrhythmia clinic for medication review & to make any necessary changes to medical treatment

Ambulatory ECG confirms inadequate ventricular response

Arrange repeat ambulatory ECG monitoring for 24 hrs one week after change of medicine therapy

Ventricular response within normal limits

Advise patient, GP, & surgical PAC team by letter that no further intervention necessary re AF management

Advise patient, GP & surgical PAC team by letter that no further intervention re AF required

Ambulatory ECG results confirm adequate ventricular response
Surgical PAC letter

Dear Dr

I am writing to inform you that (patient name) has recently attended for a pre-operative assessment and has been found to be in atrial fibrillation. A stroke risk and bleeding assessment has been performed as below.

We therefore recommend the following:

<table>
<thead>
<tr>
<th>Anticoagulation</th>
<th>Yes</th>
<th>No</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other medication changes</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Any other action required</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Follow up</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Yours sincerely