DETECTION OF ATRIAL FIBRILLATION WITH AMBULATORY ECG RECORDING – A RETROSPECTIVE SERVICE EVALUATION OF 24 HOURS HOLTER MONITOR AND CARDIAC MEMO RESULTS IN A LARGE DISTRICT GENERAL HOSPITAL

Montague Mackie, Sarah Birkhoelzer, Elena Cowan, Senthil Krubakaran. Portsmouth Hospitals NHS Trust

Introduction Atrial fibrillation (AF) is a global public health priority. An unsolved problem is how to detect paroxysmal AF. Patients presenting with palpitations are usually monitored for a short period of time with conventional 24 hour Holter monitor or 72 hours cardiac memo. As a result, it is likely that AF is being routinely underdiagnosed and undertreated. This service evaluation reviewed the proportion of patients amongst those who are investigated for palpitations/pre-syncope/syncope. This study retrospectively included patients with AF who have evidence of AF.

Methods Retrospective review of all patients who were investigated with either a 24 hours Holter monitor or 72 hours cardiac memo during August 2019. Clinic letters and discharge summaries were reviewed to assess reason for investigations, findings and outcomes. If a diagnosis of AF, paroxysmal AF or atrial flutter was made, management decision and subsequent anticoagulation was reviewed.

Results A total of 232 patients were assessed with 24 hours Holter (n=122) monitor and cardiac memo (n=108). Average age 65 years (5-94). In 5% of cases (12/232) no documentation of results was found. 5% (10/220) had new diagnosis of AF.

60% (72/122) of patients investigated with a 24 hours Holter monitor for palpitation (18/122), pre-syncope (5/122) and syncope (15/122) were in sinus rhythm (SR) +/- ectopics. No patients with palpitation or pre-syncope had AF. 4/15 patients with syncope had a new diagnosis of AF (2) or supraventricular tachycardia (2). 34% (42/122) of Holter monitor were done as a result of a documented arrhythmia, 18/42 of which had known AF. 21% (26/122) of Holter monitor were used to investigate TIA/Stroke, 3/26 had new diagnosis of AF.

70% (75/108) of patients investigated with a Cardiac Memo for palpitations (28/108), pre-syncope (13/108) and syncope (15/108) were in SR +/- ectopics. 3/28 with palpitations, 1/13 with pre-syncope, 1/15 with syncope group had new AF. 2/15 with syncope who were in SR had a reveal device implanted subsequently. 34% (37/108) were investigated due to TIA/Stroke, all of which were in SR.

Conclusion The number of patients diagnosed with significant cardiac arrhythmia, for example AF, as a result of conventional 24 hours tape and cardiac memo is low even if patients present with symptoms of palpitations, pre-syncope and syncope.

As a result of this service evaluation we have applied for a £20,000 grant as part of a ‘NHS Joint Working Project’ to introduce novel, prolonged and home-based ECG monitoring to the department. Patients who are referred to CQAH and require investigation of symptoms of palpitation, pre-syncope and syncope will be offered ECG monitoring over up to 3 months with a KardiaMobile 6 lead ECG (by AliveCor) as an alternative to conventional methods described above. A comparison of identification of cardiac arrhythmia, in particularly AF and subsequent management change, will be made.

Conflict of Interest None
linked to the number of treatments provided, each having a nationally set average tariff. The tariff is based on healthcare resource groups (HRG), which are a method of classifying patients by diagnosis (ICD10 codes) and/or procedure (OPCS codes). The main element of an HRG is the procedure but comorbidities, complications, age, gender, length of stay, legal status etc are taken into account when compiling a tariff. Following discharge, the coding department uses the above information to calculate the HRG tariff for that patient’s episode of care. [1,2] This relies on the information being entered correctly and the coding department/software assigning the right codes for that episode. Therefore, a major consequence of incomplete information and/or incorrect coding is loss of funds to the hospital.

The aim of this study was to audit the coding of elective device implants at Lister hospital

**Methods**

The audit included a cohort of patients admitted for an elective device implant at Lister hospital in September 2019. Age, comorbidities and type of implant were recorded. These were used to calculate a proposed complexity and comorbidity (CC) score and a cost based on the NHS England National Tariffs for Cardiac Rhythm and Heart Failure (CRHF). The scores and costs were then compared to those calculated by the Trusts coding department.

**Results**

14 patients in total. Only 6 patients had a full list of comorbidities and trust CC and procedure scoring. 5 of the 6 patients were correctly coded and costed. 1 patient had an incorrect CC score and consequently the trust lost £6113.

Results summarised in table 1 below.

**Discussion**

The aim of PbR was to provide a transparent and fair payment system that provides incentives to efficient providers. Implementation of PbR schemes has however not been without controversy. Reviews have shown that PbR has to be part of a package of technical support, training, new management and monitoring systems. [5] A relevant example is Cambridge University Hospitals who were awarded the national data quality award in 2017, years after the implementation of EPIC, an electronic patient record system that allowed more accurate and efficient coding [3]. The cost incurred put the trust in financial strain, however, currently being offset by reimbursements from Clinical Commissioning Groups (CCGs). [4]

The main limitation in this audit was the difficulty in obtaining clinical notes. Paper case notes slow down coders due to difficulties with extracting the right information and with deadline pressures and staff shortages, data quality is affected. This challenge is echoed by CAPITA PbR data assurance reports. [6] The quality of coded data could be improved by increasing engagement between coders and clinicians, IT systems that allow coding in line with national guidelines and improving staff training in clinical coding.

**Conclusion**

Inaccurate complexity and comorbidity scoring can lead to significant under-costing of procedures and hospital funding losses.

**Conflict of Interest**

None

---

**Table 1**

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Age</th>
<th>Type of implant</th>
<th>Proposed score</th>
<th>CC Trust score</th>
<th>CC Proposed Cost</th>
<th>Trust cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82</td>
<td>DDD</td>
<td>3</td>
<td>6+</td>
<td>£2,909</td>
<td>£2,909</td>
</tr>
<tr>
<td>2</td>
<td>81</td>
<td>VVI</td>
<td>7</td>
<td>0-2</td>
<td>£2,909</td>
<td>£2,909</td>
</tr>
<tr>
<td>3</td>
<td>63</td>
<td>VVI</td>
<td>2</td>
<td>3-5</td>
<td>£2,906</td>
<td>£2,909</td>
</tr>
<tr>
<td>4</td>
<td>88</td>
<td>DDD</td>
<td>12</td>
<td>3-5</td>
<td>£9,022</td>
<td>£2,909</td>
</tr>
<tr>
<td>5</td>
<td>87</td>
<td>ILR</td>
<td>3</td>
<td>3+</td>
<td>£3,982</td>
<td>£3,982</td>
</tr>
<tr>
<td>6</td>
<td>73</td>
<td>DDD</td>
<td>6</td>
<td>3-5</td>
<td>£2,909</td>
<td>£2,909</td>
</tr>
</tbody>
</table>

---

**Abstract 78 Figure 1**

Stages of the procedure. 1A: Venogram of SVC occlusion. 1B: Venoplasty via RFV. 1C: Snaring and externalization of 0.035 wire. 1D: Implantation of new pacing lead. Transesophageal echocardiogram (TEE). Judkins right size 4 (JR4)