Multidisciplinary Infective Endocarditis ward round findings from University Hospitals Coventry and Warwickshire (UHCW) NHS Trust 2016-2018

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Abstract
An Infective Endocarditis (IE) multidisciplinary team (MDT) weekly ward round was established at University Hospitals Coventry and Warwickshire NHS Trust (UHCW) in 2016 with members listed below. It ensures regular and consistent input, based on the ESC guidelines (1) and clinical expertise, into individual patient care, particularly as this infection requires many weeks of treatment.
IE patients reviewed by IE MDT ward round between June 2016-June 2018 (n=66) were examined in relation to demographics, infection factors, trends, length of stay, surgical intervention and mortality.
Results showed a male predominance, IVDUs to be younger, most patients to have left-sided IE, S. aureus to be the most common causative organism, substantial proportion of cases occurring in winter, longer length of stay (LOS) for IVDUs, higher IVDU mortality & non-IVDU more likely to have surgery.

Introduction
Endocarditis guidelines (1) recognise the importance & positive impact a collaborative approach for managing IE patients can have, suggesting key members & role of the team.
There are many IE cases at UHCW NHS Trust, including IVDUs.

Methods
Patients reviewed by the weekly IE MDT ward round are recorded on a Microsoft OneNote® database. IE cases between June 2016 and June 2018 were examined focusing on:
- Patient demographics (sex, age)
- Infection itself (valve affected, causative organism, treatment)
- Trends (seasonality, IVDU population)
- Outcomes (mortality)

Results

Results: General demographics, valve & surgery
- 66 IE cases: 48 males, 15 females
- 18 IVDU, 48 non-IVDU
- IVDUs were, on average, younger in age with a smaller range (Table 1)
- Mitral and aortic valves were the most commonly affected; 5 patients having bivalvular infections (Fig. 1 A)
- S. aureus most common organism with a wider range of organisms isolated from non-IVDUs (Fig. 1 B)
- Surgery was performed in ½ of non-IVDU patients vs. 1/3 of IVDU

Results: Length of stay & readmissions
- IVDUs had longer LOS in hospital (39 vs. 32 days)
- 51 vs. 32 days when adjusted for readmissions during a single IE episode e.g. IVDUs absconding.
- This only occurred in non-IVDU patients when returning to hospital for surgery following IE.
- Maximum LOS in IVDU was 203 vs. 94 in non-IVDU
- 17% of IVDU had >1 IE episode over the 2 year period (2% in non IVDU).

Table 1: Average and range of age (years) in IE patients at UHCW NHS Trust

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<thead>
<tr>
<th></th>
<th>Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVDU</td>
<td>34</td>
<td>23-49</td>
</tr>
<tr>
<td>Non-IVDU</td>
<td>63</td>
<td>19-86</td>
</tr>
</tbody>
</table>

Table 2: Diagnosis of infective endocarditis cases using Modified Duke’s Criteria with breakdown of major and minor criteria for patient’s meeting definite IE diagnosis (2)

<table>
<thead>
<tr>
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<th>Modified Duke Criteria Outcome</th>
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<tbody>
<tr>
<td></td>
<td>Definite</td>
</tr>
<tr>
<td>IVDU (n=18)</td>
<td>17</td>
</tr>
<tr>
<td>Non-IVDU (n=48)</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>2 major</td>
</tr>
<tr>
<td>Non-IVDU (n=17)</td>
<td>10</td>
</tr>
<tr>
<td>Non-IVDU (n=23)</td>
<td>18</td>
</tr>
</tbody>
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Key findings and Discussion points
- Importance of an MDT approach to infective endocarditis.
- Demographic, LOS, causative organism & in-patient mortality data are consistent with previous findings (3,4).
- Valve affected (5) is different and possible winter seasonality is a novel finding.
- Limitations of only 2 years of data; ‘trends’ may appear more significant & do not have 1 year outcome data for all patients.

References
(1) The Task Force for the Management of Infective Endocarditis of the European Society of Cardiology. European Heart Journal. 2015; 36: 3071-3127