

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

S Manyanga^{1*}, H Thynne¹, E. Vryonis², V.Cajic², F. Stalker⁴, P. E. Glennon³ & P.Munthali^{1,5}

Department of Microbiology, Coventry and Warwickshire Pathology Services¹, Department of Infectious Diseases², Department of Cardiology³ Pharmacy⁴ University Hospitals Coventry and Warwickshire NHS Trust
⁵University of Warwick



University Hospitals
Coventry and Warwickshire
NHS Trust

*Corresponding author: Samantha Manyanga, Clinical Scientist. Email: samantha.manyanga@uhcw.nhs.uk

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)

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

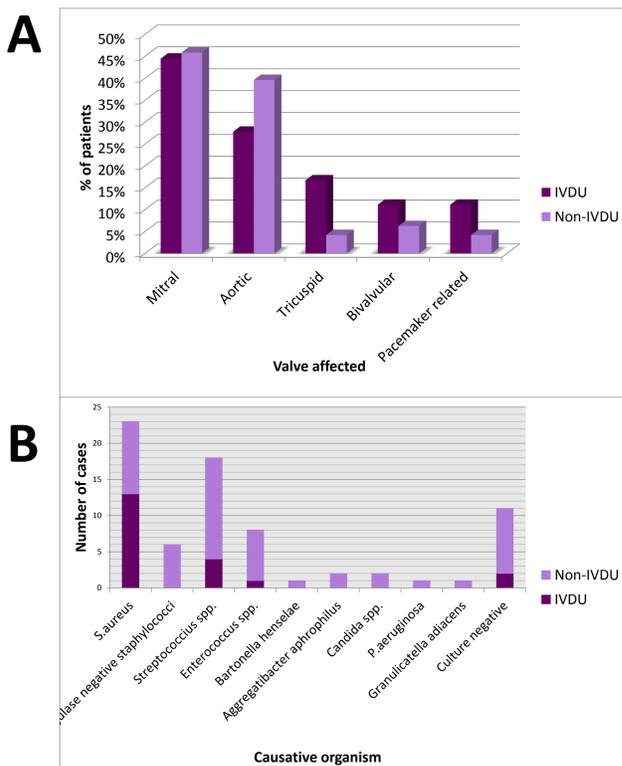
	Average	Range
IVDU	34	23-49
Non-IVDU	63	19-86

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)

	Modified Duke Criteria Outcome		
	Definite	Possible	Not met
IVDU (n=18)	17	1	0
Non-IVDU (n=48)	23	23	2 *
	2 major	1 major 3 minor	* 1 patient had vegetation on echo and diagnosis of IE on discharge letter but fulfilled no other criteria 1 patient was found to have aortic root abscess during surgery but fulfilled no other criteria
IVDU (n=17)	10	7	
Non-IVDU (n=23)	18	5	

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



Members of the IE team

- Consultant microbiologist
- Consultant cardiologist
- Consultant in Infectious Diseases
- Microbiology Clinical Scientist
- Microbiology registrar
- Lead Pharmacist for Cardiology and Cardio-thoracic Surgery
- Patient's ward doctor

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).

Key findings and Discussion points

- Importance of an MDT approach to infective endocarditis.
- Useful comparison of IVDU and non-IVDU patients.
- 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.

Figure 1. IE patient 2016-2018 at UHCW NHS Trust, separated by whether patient is IVDU or non-IVDU for comparison
 A) Valve affected
 B) Causative organism of infection (isolated from blood cultures)

References

- (1) The Task Force for the Management of Infective Endocarditis of the European Society of Cardiology. *European Heart Journal*, 2015; **36**, 3075-3123
- (2) Durack, D.T. Lukes, A.S. & Bright, D.K. *Am J Med* 1994; **96**(3): 200-209
- (3) Wurcel, A.G. et al., *Open Forum Infectious Diseases* 2016; DOI: 10.1093/ofid/ofw157
- (4) Murdoch, D.R. et al. *Arch Intern Med*. 2009; **169**(5): 463-473
- (5) Colville, T. Sharma, V. & Albouaini, K. *Postgrad Med J*. 2016; **92**: 105-111