

# Mitral and aortic valve infective endocarditis with cerebral complications in endocarditis patients at University Hospitals Coventry and Warwickshire NHS Trust.

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## Abstract

At University Hospitals Coventry and Warwickshire (UHCW) NHS Trust, IVDUs account for a quarter of the infective endocarditis (IE) cases. There are distinct differences between the intravenous drug user (IVDU) and non-IVDU population, as well as dissimilarities between common findings from IE patients, particularly IVDUs, and those from the patients seen on this IE multidisciplinary ward round at UHCW NHS Trust.

Sixty-six IE cases over a two-year period were examined, and found 85% of cases involved the aortic or mitral valve (either univalvular or bivalvular infection). IVDUs had much higher rates of cerebral complications due to embolisation (44% vs 8%) and IE attributable mortality (28% vs. 17%). This may be due to the late presentation of these patients, with many having documented stigmata of IE on admission. Overall IE in-hospital mortality rate was 15%, which is consistent with other findings (1). Surgery was performed as part of patient's IE management (either during admission or after antibiotic treatment complete) in non-IVDUs much more commonly than in our IVDU patients.

Our findings highlighted the risk of embolisation in IVDU IE patients and the challenge of whether surgery should be performed to improve outcomes in an already at-risk patient population.

## Introduction:

- Infective endocarditis (IE) is a disease affecting the endocardial layer of the heart including the valves (2).
- Incidence is approximately 3-6 cases per 100,000 patient years (2).
- IVDUs is a recognised as one of the main predispositions in the Modified Duke's Criteria for diagnosing endocarditis (3).
- Complications such as cerebral or pulmonary infarcts can occur as a result of IE depending on valve affected and mortality rate is high (4)

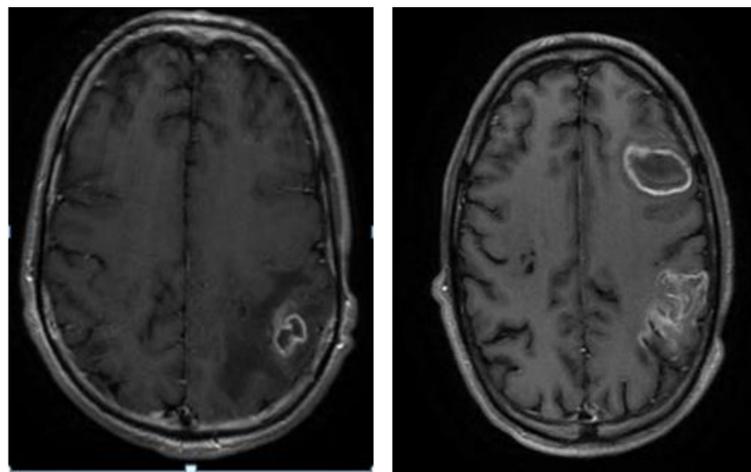


Figure 1: MRI scans from two IVDU patients with cerebral septic emboli

## Methods

- Patients reviewed by the weekly IE MDT ward round are recorded on a OneNote database.
- IE cases between June 2016 and June 2018 were examined focussing on valve affected, presence cerebral complications, mortality and surgical intervention, where applicable.
- Sixty-six patients were included of which 18 were IVDUs

## Key findings for discussion

- Higher rate of aortic and mitral valve IE, even IVDUs where tricuspid valve IE is usually more common (5)
- Surgical intervention noticeably less likely in IVDU patients.
- Higher rates of cerebral complications e.g. infarcts or abscesses in IVDUs seen at UHCW (pulmonary emboli usually seen in these patients due to right-sided IE) (5).
- Complexity of deciding appropriateness of surgical intervention when cerebral septic emboli are both an indication (6) and contra-indication for surgery (7)
- Increased risk of mortality in IVDU than non-IVDU with or without surgery and increased risk of recurrence (4), particularly if patient continues IV drug use.

## Results

Table 1: Comparison of valve affected, cerebral complications, surgical intervention, and mortality for IVDU and non-IVDU IE patients.

N (%)

\* 2 deaths removed from analysis as due to cancer rather than IE

	Valve affected				Cerebral complications	Surgery	Mortality (IE attributable) *
	Mitral	Aortic	Tricuspid	Bi-valvular			
IVDU	8 (44)	5 (28)	3 (17)	2 (11)	8 (44)	4 (29)	5 (28)
Non-IVDU	22 (46)	19 (40)	2 (4)	3 (6)	4 (8)	24 (50)	9 (17)

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