

Infective Endocarditis in people who inject drugs (PWID) at UK Medical Center

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Introduction

- The Intravenous Drug Use (IVDU) epidemic has been developing into a public health crisis in the last twenty years.¹
- In 2018, among people aged 12 or older, an estimated 1.1 million and about 526,000 had a methamphetamine and heroin use disorder, respectively.²
- As a result, the incidence of severe bacterial infections such as IE has been rising dramatically.³

Methodology

- This is a cross-sectional study, patients admitted in 2018
- Inclusion criteria: all admissions to University of Kentucky hospitals with IVDU associated ICD9/10 codes who received an Infectious Diseases consult for infective endocarditis (IE).
- We describe associated epidemiologic, clinical, and microbiological features and logistic regression was used to identify variables associated with inpatient mortality.

Table 1: Patient characteristics

| Characteristics | n (%) |
|-----------------------------------|-------------|
| Age, years [range] | 34 (20-63) |
| Gender, female | 81 (51.5%) |
| Pregnant female | 5 (6.1%) |
| Race, white | 153 (98.0%) |
| HIV positive | 3 (1.9%) |
| HCV antibody positive | 116 (73.4%) |
| HBV S antigen positive | 7 (4.5%) |
| Addiction Medicine consultation | 91 (57.2%) |
| Discharged against medical advice | 36 (22.9%) |
| Readmission within 30-days | 48 (31.0%) |
| Inpatient mortality | 20 (12.7%) |

Figure 1. Distribution of bacterial pathogens causing IE. Panel A: gram positive pathogens, Panel B: gram negative

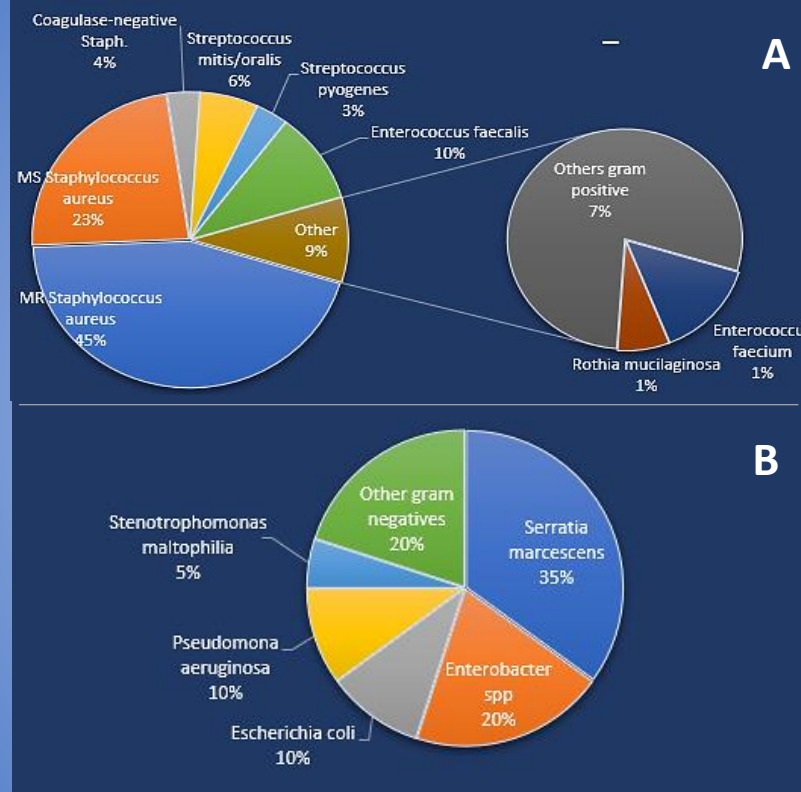


Table 2: Univariate Associations Between Risk Factors and In-Hospital Mortality

| Factors | RR | 95% CI | p |
|-------------------------|------|-------------|--------------|
| Male gender | 0.88 | 0.38 - 1.90 | 0.700 |
| Gram negative pathogens | 2.48 | 1.03 - 5.98 | 0.043 |
| Obesity | 1.53 | 0.64 - 3.66 | 0.330 |
| Smoking status | 0.68 | 0.25 - 1.84 | 0.452 |
| Alcohol abuse | 0.85 | 0.27 - 2.70 | 0.786 |

Results

- We include 391 patients in this cohort, among those 158 patients were for IE (table 1). Most common IVDU was methamphetamine 66(43.0%) cases followed by heroin in 66 (41.8%) cases.
- A previous episode of infective endocarditis was reported in 55 (35%) cases.
- Right-sided IE was more frequent, the tricuspid valve was involved in 94 (59.8%) patients, followed by aortic valve 26 (6.9%) patients.
- Fever reported in 93 (59.8%) cases, shortness of air in 43 (28.0%) cases, and chest pain in 44 (28.6%) cases were the most common symptoms.
- Gram-positive pathogens were isolated in 139 (88.5%) patients, Staphylococcus aureus was isolated in 102 (64.9%) patients, of which 67 (65.7%) were methicillin resistant. Gram-negative pathogens were isolated in 18 (11.2%) patients, and fungemia was reported in 8 (4.9%) patients. (Figure 1)
- Overall mortality was 12.7% and was significantly associated with infection by gram-negative pathogens (RR: 2.5; CI 95% 1.05 – 6.25, p=0.037).

Conclusion

- IE is a frequent complication in PWID which carries a high risk of mortality and often involves the tricuspid valve.
- The most common pathogen isolated was S. aureus
- Isolation of gram-negative pathogens was associated with increased mortality.

Reference

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