Characteristics of Infective Endocarditis (IE) and Correlates of 90-day Mortality Among People Who Do and Do Not Inject Drugs with IE in Seattle, Washington

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BACKGROUND

- People who inject drugs (PWID) are at high risk for infective endocarditis (IE) and account for a growing proportion of IE cases in the U.S.
- There are limited data comparing predictors of mortality among PWID and non-PWID with IE.

METHODS

- IE cases were identified by applying string-searching and patternmatching algorithms to discharge summaries of adult patients at two academic medical centers in Seattle, Washington from December 1, 2013 to July 31, 2019.
- All cases were chart reviewed to confirm a clinical diagnosis of IE and verify housing and active PWID status.
- Deaths were obtained from the Washington state death index.
- Multivariable Cox proportional hazard models, including PWID status, valve, age, and sex were used to assess for correlates of 90-day mortality.

Table 1. Demographic Characteristics of PWID and non PWID with IE at Two Seattle Hospitals, 2013 - 2019

	PWID (n=179)	Non-PWID (n=253)	p-value	
Median Age (IQR)	33(28, 43)	56(42, 67)	< 0.001	
Female Sex (%)	84(47)	72(31)	0.001	
Race (%)			0.10	
American Indian / Alaska Native	18(10)	9(4)		
Asian / Pacific Islander	0(0)	19(8)		
Black, non-Hispanic	14(8)	28(12)		
Latinx / Hispanic	6(3)	12(5)		
White, non-Hispanic	141(79)	167(71)		
Other	5(3)	7(3)		
Health Insurance (%)	178(99)	223(95)	0.02	
Homeless (%)	75(42)	19(8)	<0.001	
Admitted to ICU (%)	80(45)	115(49)	0.45	
Cardiac Valve Surgery within 90 days (%)	35(20)	58(25)	0.28	
Microbiology of Infective Endocarditis (%)			<0.001	
MRSA	62(35)	29(12)		
MSSA	63(35)	47(20)		
Streptococcus	32(18)	63(27)		
Enterococcus	26(15)	30(13)		
Coagulate Negative Staph	1(1)	12(5)		
Candida	1(1)	9(4)		
Other	17(9)	52(22)		
Cardiac Valve Involved (%)			<0.001	
Aortic	48(27)	108(46)		
Mitral	56(31)	92(39)		
Tricuspid	110(61)	53(23)		
Pulmonic	7(4)	8(3)		
Prosthetic Valve Endocarditis (%)	17(9)	64(27)	<0.001	

Table 2. Multivariable Adjusted Cox Proportional Hazard Ratios (AHR) for 90-day Mortality

Current Injection Drug Use	
Left Sided IE	
Age, per year	
Female Sex	

Adjusted Hazard Ratio (95% CI)	p-value
1.46 (0.81, 2.66)	0.10
3.28 (1.62, 6.66)	< 0.001
1.02 (1.00, 1.03)	0.07
1.17 (0.71, 1.91)	0.54

Figure 1. 90-day Mortality Among PWID and non-PWID with IE



Figure 2. 90-day Mortality Among Patient with Right and Left Sided IE



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WID		
	75	90
	193	191
	153	153

RESULTS

- We identified 414 patients with IE, 43% of whom were PWID.
- 69 (17%) patients died within 90 days of admission, 26 (15%) PWID and 43 (17%) non-PWID.
- There was no difference in 90-day mortality comparing PWID to non-PWID (AHR 1.46, 95% CI: 0.81, 2.66).
- Left sided IE was associated with a higher mortality at 90 days when compared to right sided IE (AHR 3.28, 95% CI: 1.62, 6.66).
- In a subgroup analysis of patients who underwent surgical management of IE, there was no statistical difference in 90-day mortality comparing PWID to non-PWID (AHR 2.88, 95% CI: 0.63, 13.05).

CONCLUSIONS

Despite PWID being significantly younger and having a higher frequency of right sided IE, PWID had similar 90-day mortality to non-PWID, regardless of surgical management, in this contemporary, urban cohort of over 400 hospitalized patients.