HIV serostatus and having access to a physician for regular hepatitis C virus care among people who inject drugs

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Background

- People who inject drugs (PWID) and who are living with HIV and hepatitis C virus (HCV) infection are vulnerable to a range of health-related harms, including liver cirrhosis, hepatocellular carcinoma, and death.
- Although a growing body of literature has explored the patterns and correlates of highly-active antiretroviral therapy (HAART) and direct-acting antiviral (DAA) therapy accessibility among PWID, there is limited evidence describing how HIV serostatus shapes access to a physician for regular HCV care among PWID.

Objective

- We sought to access the role of HIV serostatus on access to a physician for regular HCV treatment and care among PWID in Vancouver, Canada.

Methods

- Data were collected through three prospective cohorts involving people who use drugs in Vancouver, Canada, between 2005 and 2015.
- We included individuals who: 1) were HCV positive at baseline or those who seroconverted during follow-up; 2) completed at least one follow-up visit after the positive HCV test result; 3) tested positive for HCV and reported a history of injection drug use during the same visit; 4) had chronic HCV, defined as not having spontaneously cleared HCV; and 5) did not die during the study period (or up until the date of death confirmed).
- Access to a physician for regular HCV care was defined as any self-reported access to a doctor or specialist for regular HCV care at least once in the past six months.
- Using generalized estimating equations (GEE), we examined the relationship between HIV seropositivity and having access to a physician for regular HCV care.
- We conducted mediation analyses to examine whether this association was mediated by increased frequency of engagement in healthcare.

Results

Table 1. Baseline characteristics stratified by having access to a physician for regular HCV care at least once during the study period

	Total n = 1627 (%)	Access to a physician for regular HCV care		p – value
		Yes n=1357 (%)	No n=270 (%)	
Characteristic				
HIV serostatus				
positive	582 (35.8)	525 (38.7)	57 (21.1)	<0.001
negative	1044 (64.2)	831 (61.2)	213 (78.9)	
Age				
median	41.1	42.2	33.6	<0.001
IQR	(33.5-47.4)	(35.4-47.8)	(25.6-42.1)	
Gender				
males	1054 (64.8)	881 (64.9)	173 (64.1)	0.79
females	573 (35.2)	476 (35.1)	97 (35.9)	
Homelessness*				
yes	622 (38.2)	473 (34.9)	149 (55.2)	<0.001
no	1003 (61.6)	882 (65.0)	121 (44.8)	
Incarceration*				
yes	298 (18.3)	232 (17.1)	66 (24.4)	0.006
no	1316 (80.9)	1112 (81.9)	204 (75.6)	
Daily opioid injection drug use*				
yes	531 (32.6)	431 (31.8)	100 (37.0)	0.088
no	1092 (67.1)	923 (68.0)	169 (62.6)	
Daily stimulant injection drug use*				
yes	235 (14.4)	187 (13.8)	48 (17.8)	0.094
no	1386 (85.2)	1164 (85.8)	222 (82.2)	
Enrollment in methadone maintenance therapy*				
yes	671 (41.2)	602 (44.4)	69 (25.6)	<0.001
no	941 (57.8)	741 (54.6)	200 (74.1)	
Hospitalized*				
yes	317 (19.5)	269 (19.8)	48 (17.8)	0.438
no	1310 (80.5)	1088 (80.2)	222 (82.2)	
Frequency of engagement in healthcare				
once every 6 months	175 (10.8)	136 (10.0)	39 (14.4)	<0.001
once every 2-3 months	235 (14.4)	190 (14.0)	45 (16.7)	
once a month	408 (25.1)	363 (26.8)	45 (16.7)	
every two weeks	212 (13.0)	192 (14.2)	20 (7.4)	
once a week	191 (11.7)	169 (12.5)	22 (8.2)	
more often than once a week	132 (8.1)	111 (8.2)	21 (7.8)	
no access	274 (16.8)	196 (14.4)	78 (28.9)	

HCV: Hepatitis C Virus
*Activities reported in the six months prior to interview

Results cont'd

- In total, 1627 HCV-positive PWID were eligible for analysis (Table 1); 573 (35.2%) were female and the median age at baseline was 41 years (quartile [Q]1 - Q3: 34-47 years).
- 582 (35.8%) were HIV positive at baseline and 31 (1.9%) became HIV positive during follow-up.
- Indicated in Table 2, in bivariable analyses, HIV serostatus was significantly and positively associated with having access to a physician for regular HCV care (odds ratio [OR] = 2.17; 95% confidence interval [CI]: 1.93-2.44).
- This association remained largely unchanged in multivariable analysis even after adjusting for a range of possible confounders (adjusted odds ratio [AOR] = 1.99; 95% CI: 1.77-2.24) (Table 2).

Table 2. Bivariable and multivariable GEE analysis to determine the relationship between HIV serostatus and having access to a physician for regular HCV care

	Unadjusted		Adjusted	
Characteristic	**Odds Ratio (95% CI)**	**p - value**	**Odds Ratio (95% CI)**	**p - value**
HIV serostatus (positive vs. negative)	2.17 (1.93 - 2.44)	<0.001	1.99 (1.77 - 2.24)	<0.001
Age (per one year increase)	1.02 (1.01 - 1.02)	<0.001	1.01 (1.00 - 1.01)	0.007
Gender (male vs. female)	1.14 (1.01 - 1.29)	0.036	1.21 (1.07 - 1.37)	0.002
Homelessness* (yes vs. no)	0.70 (0.64 - 0.76)	<0.001	0.80 (0.73 - 0.87)	<0.001
Incarceration* (yes vs. no)	0.82 (0.72 - 0.92)	0.001	0.97 (0.86 - 1.10)	0.642
Daily opioid injection drug use* (yes vs. no)	0.59 (0.53 - 0.65)	<0.001	0.70 (0.63 - 0.77)	<0.001
Daily stimulant injection drug use* (yes vs. no)	0.86 (0.77 - 0.96)	0.007	0.93 (0.83 - 1.04)	0.23
Enrollment in methadone maintenance therapy* (yes vs. no)	1.86 (1.69 - 2.04)	<0.001	1.76 (1.60 - 1.95)	<0.001
Hospitalized* (yes vs. no)	1.17 (1.07 - 1.27)	0.001	1.20 (1.09 - 1.32)	<0.001

GEE: Generalized Estimating Equation; HIV: Human Immunodeficiency Virus; HCV: Hepatitis C Virus; CI: Confidence Interval
*Activities reported in the six months prior to interview

- Mediation analysis yielded a statistically significant positive average causal mediation effect (β = 0.05; 95% CI: 0.04-0.05), average direct effect (β = 0.14; 95% [CI]: 0.11-0.17) and total effect (β = 0.19; 95% [CI]: 0.16-1.22), suggesting that for HIV-seropositive participants, an increased frequency of engagement in healthcare resulted in a higher likelihood of accessing HCV physician care, as compared to HIV-seronegative participants.
- Approximately 26.1% of the effect was due to mediation.

Discussion

- In this study, we observed a high proportion of participants who reported access to a physician for regular HCV care.
- We found a positive and independent relationship between HIV seropositivity and having access to a physician for regular HCV care. Additionally, our findings revealed that an increased frequency of engagement in healthcare mediated this relationship.
- The findings highlight the need to address patterns of inequality in access to HCV care among PWID.

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