Barriers To Direct-Acting Antiviral Therapy Among HIV/HCV-Coinfected Adults

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BACKGROUND

- HIV & chronic hepatitis C virus (HCV) coinfection carries substantial risk for all-cause mortality and liver related morbidity and mortality, yet many people co-infected with HIV/HCV remain untreated for HCV infection.
- We explored demographic, clinical variables and social determinants of health among HIV/HCV-coinfected persons in routine HIV care that may differentiate those treated versus untreated with direct-acting antivirals (DAAs) to achieve sustained virologic response (SVR). Treatment success for HCV infection is defined as SVR or an undetectable HCV RNA level after 12 weeks of DAA therapy (SVR12).

METHODS

- We analyzed medical record data as of December 31, 2018 of HIV Outpatient Study (HOPS) patients seen at 9 U.S. clinics who were diagnosed with HCV with at least one confirmatory HCV RNA viral load (VL) test or genotype test since June 30, 2010.
- DAA therapy was determined by medication prescription from the HOPS database. Patients treated with interferon/ribavirin along with DAA were excluded. Based on bivariate analyses, factors associated with the probability of receiving DAA therapy were further evaluated by multivariable logistic regression.

RESULTS

- Among 306 eligible patients, median age was 52 years, median duration of follow up was 3.96 years, 97 (32%) were female, and 202 (66%) were non-white (Table 1).
- 131 (42.8%) patients were prescribed DAA therapy (Table 1).
- Univariate logistic regression indicated that DAA therapy was not associated with patient's race and ethnicity (p=0.17), history of substance use (p=0.53), nor a mental health condition (p=0.43) (data not shown).
- Factors associated with DAA therapy from multivariable logistic regression were older age, with health insurance, higher CD4 range, and injection drug use as the HIV risk category. Compared with the publicly insured, privately insured patients were more likely to receive DAA with an odds ratio of 2.30 (95% confidence interval: 1.32-4.12) (Figure 1).
- Patients had between 1 (min) and 13 (max) HCV VL tests after DAA initiation, with a median of 4 tests.
  - 127 (96.9%) had at least one follow-up HCV VL with 4 lost to follow-up.
  - Among 127 patients with at least one follow-up HCV test, 110 (87%) achieved SVR 12 weeks after DAA initiation.
  - 113 (89%) achieved SVR 1 year after DAA initiation.
  - 123 (97%) eventually achieved SVR up to 4 years after DAA initiation (Figure 2).

The findings and conclusions from this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

In the HOPS cohort, only 42.8% of HIV/HCV-coinfected adults have been treated for HCV with direct-acting antiviral therapy. SVR was achieved in 97%.

Factors associated with lower uptake of DAA therapy included younger age, sexual transmission as the HIV risk factor, lower CD4 range, and public or no insurance.

Substance use, mental health diagnosis, race, and ethnicity were not associated with uptake of DAA therapy.

Table 1: Demographic and social determinant factors of HIV/HCV co-infected patients, the HIV Outpatient Study, 2010-2018, n=306

	Total n (%)	With DAA therapy n (%)	Without DAA therapy n (%)	P value (Chi-square test)
TOTAL	306 (100%)	131 (42.8%)	175 (57.2%)	
RACE/ETHNICITY				
White, Non-Latinx	104 (34)	47 (35.9)	57 (32.6)	0.17
Black, Non-Latinx	139 (45.4)	52 (39.7)	87 (49.7)	
Non-Latinx others	7 (2.3)	2 (1.5)	5 (2.9)	
Latinx ethnicity	56 (18.3)	30 (22.9)	26 (14.9)	
AGE AT BASELINE (DAA initiation)				
18-39	37 (12.1)	11 (8.4)	26 (14.9)	0.24
40-49	87 (28.4)	39 (29.8)	48 (27.4)	
50+	182 (59.5)	81 (61.8)	101 (57.7)	
Age, median years (IQR)	52 (46-58)	52 (46-59)	51 (44-57)	0.02
SEX				
Female	97 (31.7)	48 (36.6)	49 (28)	0.15
Male	209 (68.3)	84 (62.5)	126 (72)	
INSURANCE TYPE				
Private	81 (26.5)	43 (32.8)	38 (21.7)	0.012
Public	207 (67.7)	85 (64.9)	122 (69.7)	
Self pay/none/other/unknown	18 (5.9)	3 (2.3)	15 (8.6)	
HIV TRANSMISSION RISK GROUP				
MSM	92 (30.1)	33 (25.2)	59 (33.7)	0.05
Heterosexual	95 (31.1)	37 (28.2)	58 (33.1)	
PWID	102 (33.3)	55 (42.0)	47 (26.9)	
Other/unknown	17 (5.6)	6 (4.6)	11 (6.3)	
CD4 COUNT AT BASELINE (DAA initiation)				
<100	14 (4.6)	2 (1.5)	12 (6.9)	0.003
100-199	27 (8.8)	5 (3.8)	22 (12.6)	
200-349	49 (16.0)	19 (14.5)	30 (17.1)	
350-499	51 (16.0)	22 (16.8)	29 (16.6)	
500+	165 (53.9)	83 (63.4)	82 (46.9)	
Median CD4 count	534 (307-755)	622 (400-786)	457 (229-684)	
SUBSTANCE USE				
Current	120 (39.2)	46 (35.1)	74 (42.3)	0.54
Previously	47 (15.4)	20 (15.3)	27 (15.4)	
Never	116 (37.9)	53 (40.5)	63 (36.0)	
Unknown	23 (7.5)	12 (9.2)	11 (6.3)	
PRIOR MENTAL HEALTH DIAGNOSIS				
Yes	108 (35.3)	43 (32.8)	64 (36.6)	0.47
No	198 (64.7)	88 (67.2)	111 (63.4)	

Note: P values for categorical variables by Chi-square test; quantitative variable by T-test

The HIV Outpatient Study (HOPS) Investigators include the following persons and sites: Kate Buchacz, Marcus D. Dunbar, Lisa Hightow-Weidman, Jonathan Mermin, Jonathan Ellen, Jack Hall, Sharon Melville, Sybil Hosein, Atlanta, GA; Cheryl Akridge, Stacey Purinton, Selom Agbobli-Nowasky, Kathryn Chagaris, Kimberly Carlson, Qingjiang Hou, Carl Armon, Linda Battalora, Jonathan Mermin Cerner Corporation, Kansas City, MO; Frank J. Palella, Sana Jahangir, Conor Daniel Flaherty, Feinberg School of Medicine Northwestern University, Chicago, IL; Kenneth S. Greenberg, Barbara Widick, Rosa Franklin, Rocky Mountain Cares, Denver, CO; Douglas J. Ward, Linda Kirkman, Dupont Circle Physicians Group, Washington, DC; Jack Fuhrer, Linda Ording-Bauer, Rita Kelly, Jane Esteves, State University of New York (SUNY), Stony Brook, NY; Ellen M. Tedaldi, Ramona A. Christian, Faye Ruley, Dania Beadle, Princess Davenport, Lewis Katz School of Medicine at Temple University, Philadelphia, PA; Richard M. Novak, Andrea Wendrow, Stockton Mayer. University of Illinois at Chicago, Chicago, IL; Mia Scott, Billie Thomas, APEX Family Medicine, Denver, CO; Cynthia Mayer, Victoria Franco, Karen Maroney, Carrie Humberger, SJH Comprehensive Research Institute, Tampa, FL.

Figure 1: Factors associated with DAA therapy from multivariate logistic regression, the HIV Outpatient Study, 2010-2018, n=306

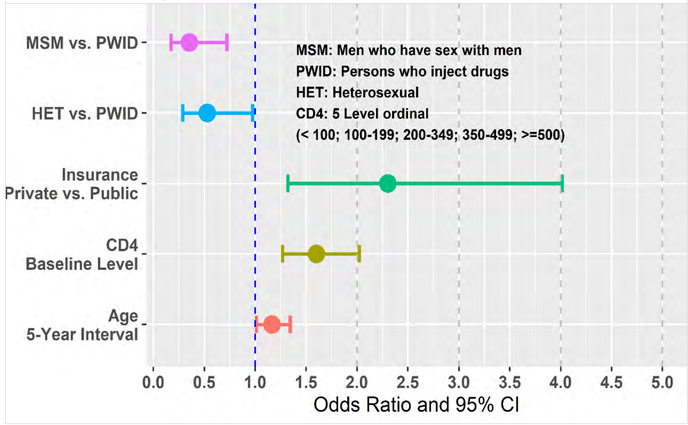
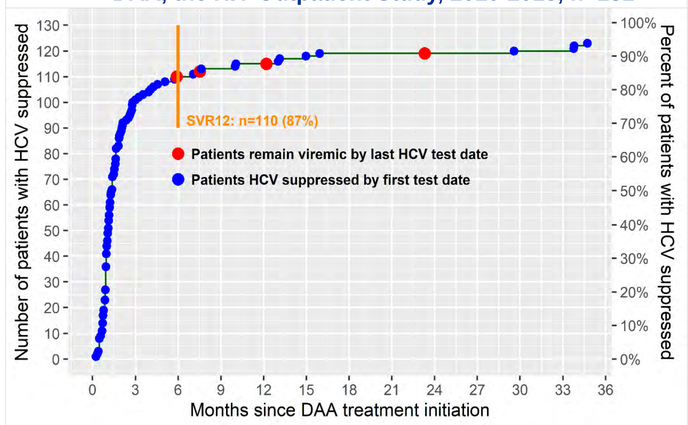


Figure 2. Longitudinal HCV suppression in patients receiving DAA, the HIV Outpatient Study, 2010-2018, n=131



LIMITATIONS

- The HOPS database may not have captured prescriptions outside the clinic which would underestimate DAA utilization. Patients may also have outside HCV VL lab tests that went uncaptured, underestimating HCV diagnosis or SVR.

CONCLUSIONS

- Only 42.8% of HIV/HCV-coinfected patients have been treated for HCV in the HOPS cohort.
- Factors associated with lower uptake of DAA therapy included younger age, sexual transmission as the HIV risk factor, lower CD4 range, and public insurance.
- Due to variability in follow-up HCV VL testing, only 87% had documented SVR12; however 94% of patients eventually achieved SVR after 4 years of follow-up.
- Improved insurance coverage and expanded clinical care access to younger, presumably healthier individuals, is needed to bridge the HCV treatment gap.

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