The Hepatitis C Cascade of Care Among HIV Infected Patients Following Diagnosis of HCV Infection

ER. Cachay[1,2], L. Hill[3], DL. Wyles[1,2], FJ Torriani[1,2],C. Ballard[3], B. Colwell[3] and Wm C. Mathews[1]

[1]Department of Medicine, Owen Clinic, UC San Diego, [2]Department of Medicine, Division of Infectious Diseases, UC San Diego, [3]Skaggs School of Pharmacy and Pharmaceutical Sciences, UC San Diego

Corresponding Author: ***Edward R. Cachay*** *,e-mail: ecachay@ucsd.edu*

Background

- Guidelines recommend screening for hepatitis C (HCV) in persons living with HIV (PLWH) upon establishment of HIV care[1].
- However, despite major advances in HCV therapy, access to HCV treatment remains low in PLWH in the United States and Europe[2-3], resulting in increased morbidity and costs due to HCV related complications[4].
- In 2008, an HIV primary care-based HCV co-infection program with an inclusive protocol aimed at increasing treatment uptake among PLWH co-infected with HCV, including those with ongoing drug/alcohol abuse and/or neuropsychiatric disease, was implemented at UC San Diego[5].
- Little is known about factors influencing HCV treatment referral and disposition following HCV diagnosis and establishing HIV care.

Objectives

- To describe HCV cascade of care for HIV patients with known diagnosis of HCV infection.
- To identify characteristics associated with non-referral for HCV treatment consideration.
- To better characterize reasons for not initiating HCV therapy after completion of HCV treatment staging.

Methods

- Retrospective cohort analysis of HIV-infected patients under care at UCSD Owen Clinic between 2008-2012.
- Referral center: Owen HCV co-infection clinic.
- Inclusion criteria: HCV+ antibody and detectable HCV viral load (if available) or HCV- antibody and detectable HCV viral load.
- Patients were categorized based on HCV treatment referral status in two groups: referred and non-referred.
- Referred and non-referred patients were compared with respect to demographic characteristics and reasons for HCV treatment referral.
- Barriers to care definition included: a) self-reported ongoing illicit drug or alcohol use within 3 months of last attended visit for HIV clinical care or first HCV attended clinic visit whichever occurred last; b) Ongoing uncontrolled psychiatric disease documented by psychiatrist or primary care provider; and c) uncontrolled AIDS (CD4 ≤ 200 cells/mm3 and HIV RNA >40) and/or loss to follow-up attributed to alcohol or drug use.
- Referred and non-referred patients were evaluated for unstable housing, end-stage liver disease, cardiovascular disease, active medical comorbidities, chronic kidney disease stage 3b or greater, and active diagnosis of malignancy other than hepatocellular carcinoma.
- Engagement in care was defined as 2 visits with primary care physician in each calendar year for entire defined study period or until date of referral, unless patient transferred care or was incarcerated

Results

Figure 1: HCV cascade of care in HIV-Infected patients following HCV infection diagnosis. UCSD Owen Clinic: 2008-2012

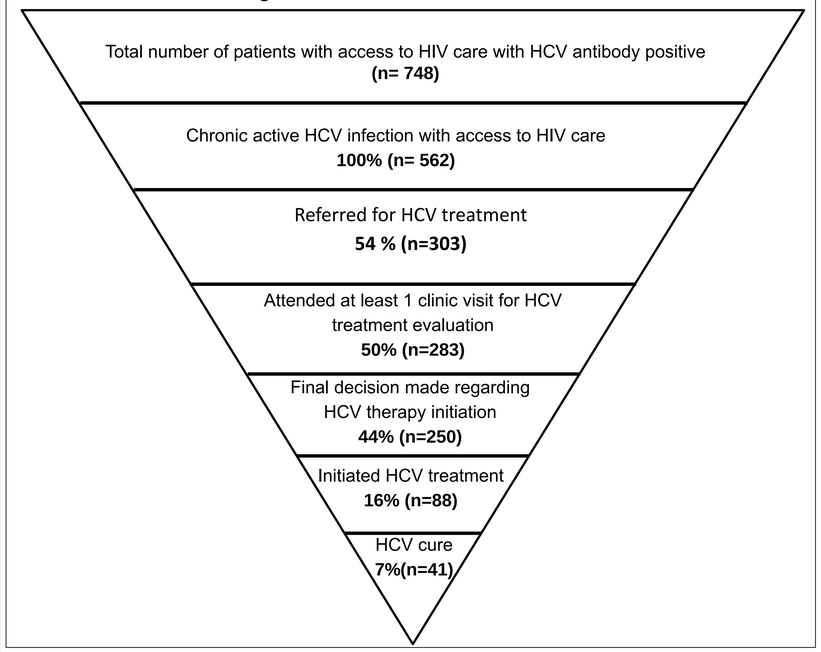


Table 1: Demographic and HIV characteristics of patients referred and non-referred for hepatitis C treatment consideration

Clinical characteristic	Referred (n=303)	Non-referred (n=259)	P value
Median age - years (range)	48 (19-75)	49 (20-71)	0.30
Sex: Male (%)	256 (85)	215 (83)	0.64
Race: Non- White (%)	84 (27)	101 (39)	**0.001**
Ethnicity: Hispanic (%)	50 (17)	55 (21)	0.15
HIV risk factors			**< 0.0001**
Gay/bisexual (%)	76 (25)	90 (35)	
Heterosexual (%)	14 (5)	32 (12)	
Intravenous drug use (%)	78 (26)	30 (12)	
Hemophilia (%)	9 (3)	8 (3)	
Gay and intravenous drug use (%)	69 (23)	51 (20)	
Heterosexual and intravenous drug use (%)	45 (14)	35 (5)	
Other/unknown (%)	12 (4)	321 (5-1777)	
Median T CD4+ cell count - cell/mm3 (range)	427 (38-1612)	321 (5-1777)	**0.001**
Detectable HIV viral load (>40 copies/ml)	98 (32)	125 (48)	**< 0.0001**

Table 2: Characteristics associated with referral for HCV treatment consideration

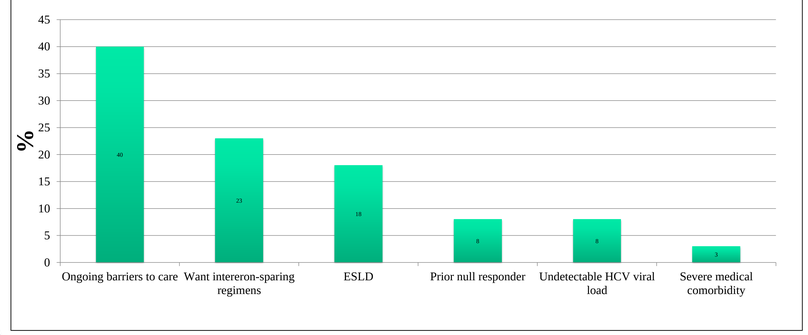
Clinical characteristic	Referred (n=303)	Non-referred (n=259)	P value
Not engaged in care	31 (10)	95 (37)	**< 0.0001**
Unstable housing	22 (7)	39 (15)	**0.003**
Most recent CD4 cell count ≤200	51 (17)	70 (27)	**0.003**
Ongoing psychiatric disorders	143 (47)	62 (24)	**< 0.0001**
Ongoing drug and/or alcohol use	118 (39)	75 (29)	**0.013**
Decompensated cirrhosis	34 (11)	21 (8)	0.22
Active opportunistic infections	5 (2)	9 (4)	0.17
Platelets ≤ 50,000/mm^3	11 (4)	6 (2)	0.37
Other medical comorbidity that takes clinical care priority	39 (13)	28 (11)	0.45
Anemia ≤ 10 g/dL	11 (4)	10 (4)	0.89
Cardiovascular Disease	16 (5)	13 (5)	0.89
Chronic kidney disease 3b (<45 mL/min/1.73 m^2)	10 (3)	13 (5)	0.31
Malignancy other than hepatocellular carcinoma	6 (2)	15 (6)	**0.02**

Results (continue)

Table 3: Predictors for not being referred for HCV therapy consideration

Covariate	Unadjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Not engaged in care	5.08 (3.24-6.97)	<0.000001	4.42 (2.69-7.28)	<0.000001
Having detectable viral load (>40 copies/mL)	1.98 (1.36-2.75)	0.0001	1.88 (1.26-2.81)	0.002
Unstable Housing	2.26 (1.30-3.93)	0.004	1.97 (1.03-3.79)	0.041
Having an active malignancy	3.47 (1.35-8.92)	0.01	2.78 (0.96-8.03)	0.058
AIDS (CD4 cell count <200/mm^3)	1.83 (1.22-2.75)	0.004	1.68 (1.05-2.69)	0.03
Non-white race	1.67 (1.17-2.38)	0.005	1.59 (1.06-2.40)	0.025
HIV risk factors (reference intravenous drug use)				
Men having sex with men	1.96 (1.34-2.78)	0.0006	1.96 (1.27-3.02)	0.0023
Other	2.51 (1.54-4.07)	0.0002	1.64 (0.95-2.82)	0.075
Ongoing neuropsychiatric condition	0.35 (0.26-0.63)	<0.000001	0.37 (0.24-0.56)	<0.000001

Figure 2: Reasons for not initiating HCV treatment after clinical staging (n=195)



Conclusions

1. The most important predictor of non-referral for HCV therapy was not being engaged in care. Other predictors included unstable housing, AIDS, detectable HIV viremia, active malignancy and being non-white.
2. Ongoing neuropsychiatric disease and/or active drug use was positively associated with referral for HCV therapy.
3. Even in the presence of effective, safer and shorter INF-sparing treatment options, 4 out of 10 PLWH co-infected with HCV may not benefit from HCV therapy unless ongoing barriers to care are effectively managed.

References

1. Aberg JA et al. Primary care guidelines for the management of persons infected with HIV: 2013 update by the HIV Medicine Association of the Infectious Diseases Society of America. Clin Infect Dis. 2014 Jan;58:1-10
2. Scott JD, et al. Hepatitis C Virus is Infrequently Evaluated and Treated in an Urban HIV Clinic Population. *AIDS Patient Care STDS.* 2009;23:925-9.
3. Grint D et al. Temporal changes and regional differences in treatment uptake of hepatitis C therapy in EuroSIDA. HIV Med. 2013 Nov;14 :614-23
4. Gordon S et al. Impact of Disease Severity on Health Care Costs in Patients with Chronic Hepatitis C (CHC) Virus Infection. *Hepatology.* 2012;56:1651-60.
5. Cachay et al. Increasing Hepatitis C treatment uptake among HIV-infected patients using an HIV primary care model. AIDS Res Ther. 2013 Mar 28;10:9

All authors involved in this study have no conflicts of interest to disclose.