Sustained Virologic Response and the Risk of Liver Decompensation in HCV and HIV/HCV Patients

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Background

- Few studies have evaluated the impact of achieving virologic cure of chronic hepatitis C virus (HCV) infection on liver complications in real-world settings
- It remains unclear if rates of hepatic decompensation in HCV-monoinfected patients who achieve a sustained virologic response (SVR) are similar to those of HIV/HCV-c-infected persons who achieve SVR

Study Objectives

- To assess the effect of SVR on hepatic decompensation rates in patients with HIV/HCV coinfection and HCV monoinfection.
- To compare rates of hepatic decompensation in HIV/HCV-coinfected and HCV-monoinfected patients who achieved SVR

Methods

- **Study Design and Data Source**: Retrospective cohort study in US Veterans Health Administration (VA) between 1 October 1 2005 and 28 February 2012
- **Study Patients:**
  - HCV-monoinfected patients had: 1) HCV viremia, 2) received interferon-based HCV therapy, 3) no HIV, and 3) at least 12 months in the VA system
  - HIV/HCV-coinfected patients had: 1) HIV, 2) HCV viremia, 3) received interferon-based HCV therapy, and 4) at least 12 months in the VA
  - Excluded: 1) baseline decompensation, or 2) HBV infection
  - Follow-up: 1) Began on date of initiation of HCV therapy
    2) Continued until endpoint, death, or 28 Feb 2012
- **Hepatic Decompensation**: Defined by 1 hospital ICD-9 diagnosis or ≥2 outpatient ICD-9 diagnoses of ascites, SBP, or esophageal variceal bleed
- **SVR**: Undetectable HCV RNA 12 weeks after treatment end date
- **Data Analysis:**
  - Incidence rates (IR) of decompensation calculated from date of SVR
  - Cox regression used to determine adjusted hazard ratios (HRs) of decompensation, adjusted for age, ethnicity, baseline HCV RNA level, diabetes, and alcohol abuse/ dependence

Baseline Cohort Characteristics

	HCV-Monoinfected (n=11,395)	HIV/HCV-Coinfected (n=467)
Mean age (years, SD)	55.4 (6.0)	54.9 (6.8)
Male sex, n (%)	10,897 (95.6)	452 (96.8)
Race, n (%)		
White non-Hispanic	2,682 (23.5)	96 (20.6)
Black non-Hispanic	1,449 (12.7)	157 (33.6)
Hispanic	335 (2.94)	24(5.1)
Other	6,929 (60.8)	190 (40.7)
Comorbidities, n (%)		
Diabetes	2,443 (21.4)	74 (15.9)
Alcohol abuse/dependence	2,848 (25.0)	94 (20.1)
IDU/non-injection drug abuse	5,623 (49.4)	223 (47.8)
Cirrhosis	1,357 (11.9)	49 (10.5)
Depression	4,758 (41.8)	214 (45.8)
HCV RNA >800,000 IU/mL	8,165 (71.7)	350 (74.9)

Hepatic Decompensation Rates, By SVR Status

Treated HCV-Monoinfected (n = 11,395)

Outcome	No SVR (n= 7,868)		SVR (n= 3,527)		HR of Decompensation* (95% CI)
	n (%)	IR	n (%)	IR	
Decompensation	310 (3.9)	16.7	26 (0.7)	3.4	**5.13 (3.34 - 7.86)**
Ascites	195 (2.5)	10.4	14 (0.4)	1.8	-
Spont. Bact. Peritonitis	12 (0.2)	0.6	3 (0.1)	0.4	-
Variceal Hemorrhage	150 (1.3)	8.0	11 (0.3)	1.4	-

Treated HIV/HCV-Coinfected (n= 467)

Outcome	No SVR (n= 354)		SVR (n= 113)		HR of Decompensation* (95% CI)
	n (%)	IR	n (%)	IR	
Decompensation	12 (3.4)	13.3	1 (0.9)	4.2	**1.74 (0.2 -14.5)**
Ascites	8 (2.3)	8.8	1 (0.9)	4.2	-
Spont. Bact. Peritonitis	2 (0.6)	2.2	0 (0.0)	0.0	-
Variceal Hemorrhage	4 (1.1)	4.4	1 (0.9)	4.2	-

Abbreviation: IR=incidence rate (events/1,000 person-years)

* HR of decompensation in persons who achieved vs. did not achieve SVR. HRs were adjusted for age, ethnicity, HCV RNA level, diabetes, and alcohol abuse.

Rates of Decompensation in HIV/HCV-Coinfected Vs. HCV-Monoinfected Who Achieved SVR

Outcome	Incidence Rate of Outcome (events/1,000 person-years)		HR of Decompensation* (95% CI)
	HCV (n= 3,527)	HIV/HCV (n= 113)	
Decompensation	3.4	4.2	**1.67 (0.22- 12.47)**
Ascites	1.8	4.2	-
Spont. Bact. Peritonitis	0.4	0.0	-
Variceal Hemorrhage	1.4	4.2	-

* HR of decompensation in HIV/HCV-coinfected vs. HCV-monoinfected. HR was adjusted for age, ethnicity, HCV RNA level, diabetes, and alcohol abuse

- Incidence rates of hepatic decompensation were higher for HCV-monoinfected patients who did not achieve SVR compared to those who did (16.7 vs. 3.4 events/1,000 person-years; adjusted HR=5.13; 95% CI, 3.34-7.86).
- Incidence rates of hepatic decompensation were also higher for HIV/HCV-coinfected who did not achieve SVR compared to those who did (13.3 vs. 4.2 events/1,000 person-years), but this difference was not statistically significant (adjusted HR=1.74; 95% CI, 0.21-14.48)
- HIV/HCV-coinfected patients who achieved SVR did not have a higher rate of hepatic decompensation than HCV-monoinfected patients with SVR (adjusted HR=1.67; 95% CI, 0.22-12.47).

Conclusions

- Achieving SVR following interferon-based treatment decreased rates of hepatic decompensation among HIV/HCV-coinfected and HCV-monoinfected patients
- HIV/HCV-coinfected patients who achieved SVR did not have a higher rate of hepatic decompensation than HCV-monoinfected patients with SVR
- These findings suggest that successful HCV therapy is associated with reduced liver complications in both HIV/HCV-coinfected and HCV-monoinfected patients