

PREDICTORS OF HEPATOCELLULAR CARCINOMA IN HIV/HCV CO-INFECTED PATIENTS WITH CIRRHOSIS

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BACKGROUND

- Cirrhosis is the most important risk factor for hepatocellular carcinoma (HCC) in patients with HIV/HCV co-infection.
- However, even among patients with cirrhosis, HCC risk if not uniform. Indeed, most HIV/HCV co-infected patients with cirrhosis do not progress to HCC.

STUDY AIMS

- Determine the risk of HCC in HIV/HCV co-infected patients with cirrhosis.
- Determine risk factors for progression from cirrhosis to HCC in HIV/HCV co-infected patients.

METHODS

- **Study design:** Retrospective cohort.
- **Data source:** VA HIV and HCV Clinical Case Registries.
- **Study period:** 1999-2010.
- **Outcome of interest:** Incidence of HCC.
- **Data analysis:**
- Descriptive analysis.
- Cox proportional hazards models were used to estimate Hazard Ratios (HR) and 95% confidence intervals (95% CI) for associations with risk of HCC.
- We treated death as a competing risk event instead of a censoring event.

DEFINITIONS

- **Cirrhosis:** ICD-9-CM codes 571.5, 571.6, and 571.2 or an aspartate aminotransferase to platelet ratio index >2.
- **cART:** any combination of 2 NRTI and 1 of either NNRTI or PI.
- **Recent CD4 count:** CD4 count at time of event, death or censor.
- **CD4 nadir:** lowest CD4 count prior to initiation of cART.
- **Last HIV VL:** VL at time of event, death or censor.
- **Undetectable VL:** ≤500.
- **HCC:** ICD-9 codes 155.0 without 155.1.

TABLE 1: RISK FACTORS FOR HEPATOCELLULAR CARCINOMA

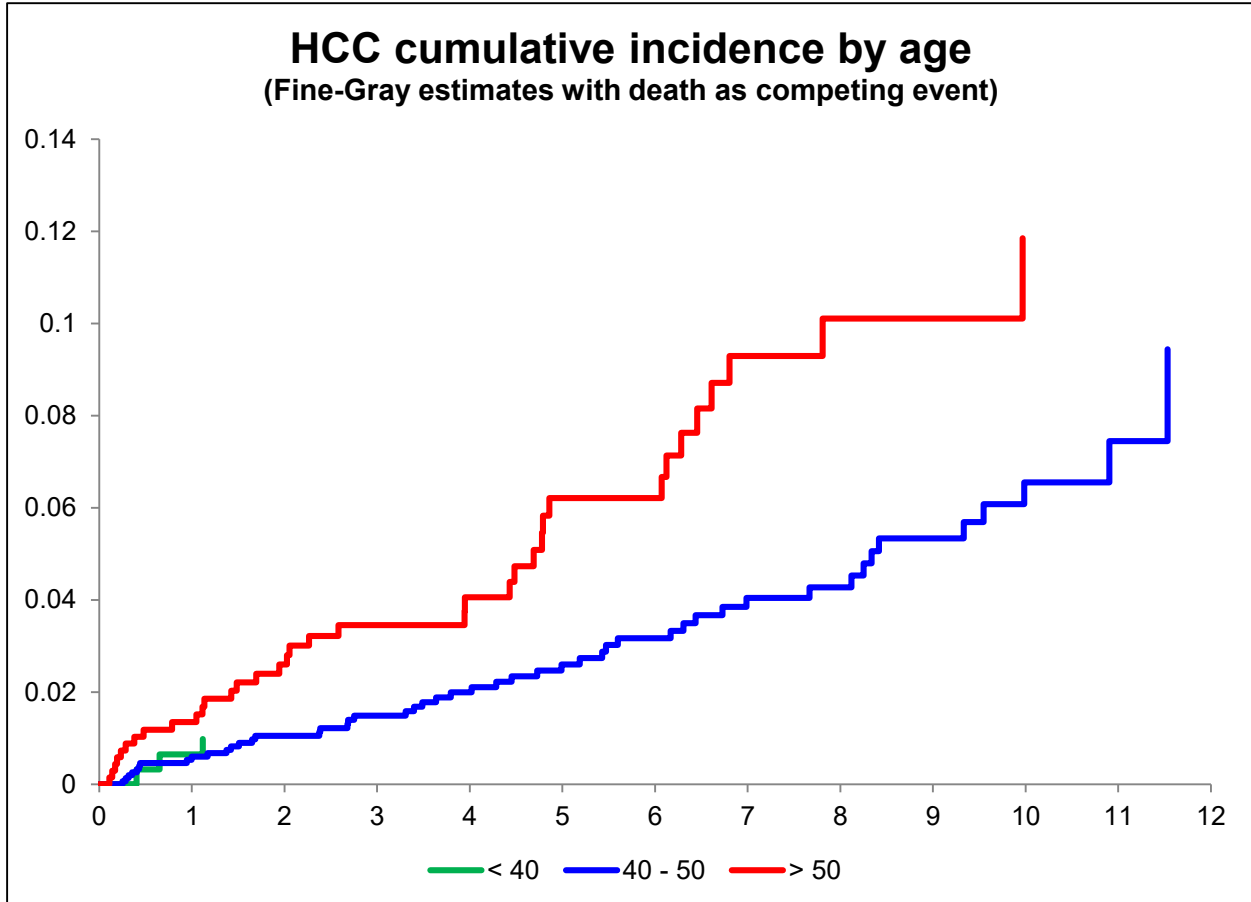
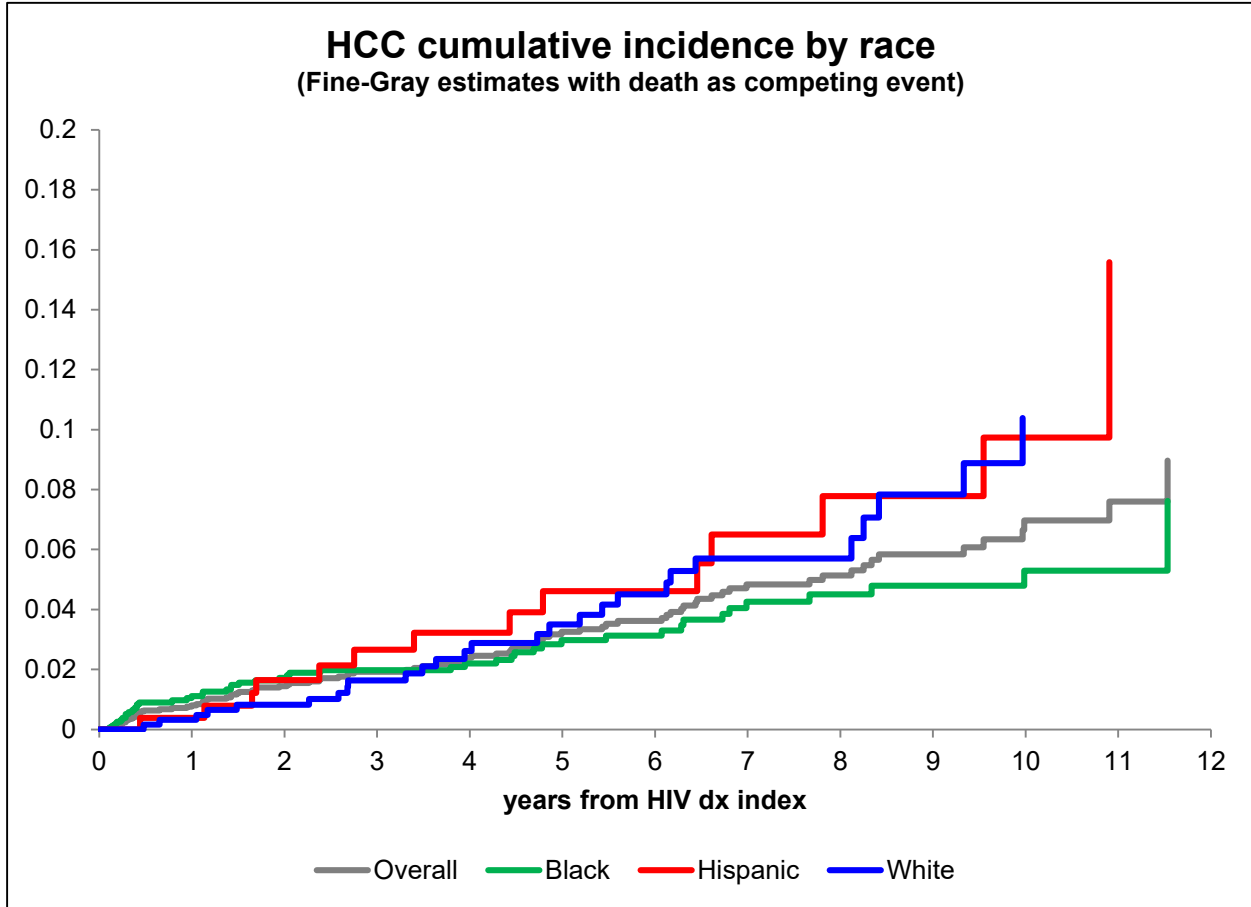
Variable	Category	Unadjusted HR (95% CI)	p-value	Adjusted HR (95% CI)	p-value
Age at HCV diagnosis, years	<40	1.00 (ref)		1.00 (ref)	
	40-50	1.90 (1.04-3.47)	0.04	1.92 (1.05-3.50)	0.03
	>50	4.14 (2.20-7.79)	<.0001	3.73 (1.94-7.16)	<0.001
Race/Ethnicity	White	1.00 (ref)			
	Hispanic	1.21 (0.64-2.30)	0.56		
	Black	0.75 (0.46-1.20)	0.22		
Alcohol abuse	No	1.00 (ref)		1.00 (ref)	
	Yes	0.53 (0.35-0.81)	0.003	0.73 (0.47-1.13)	0.15
Treatment	No treatment	1.00 (ref)			
	Treatment w/o SVR	0.96 (0.54-1.69)	0.89		
	Treatment with SVR	0.19 (0.03-1.35)	0.10		
HCV genotype	2 or 3	1.00 (ref)			
	1 or 4	1.25 (0.77-2.01)	0.37		
Percent undetectable viral load	<40%	1.00 (ref)			
	40-80%	0.74 (0.45-1.21)	0.22		
	80-100%	0.79 (0.46-1.33)	0.37		
HAART era	Pre-cART	1.00 (ref)			
	Early cART	1.56 (0.93-2.60)	0.09		
	Late cART	2.09 (1.16-3.73)	0.01		
Ever hard drug use	No	1.00 (ref)			
	Yes	0.61 (0.40-0.92)	0.02		
Ever use of antipsychotics	No	1.00 (ref)		1.00 (ref)	
	Yes	0.40 (0.25-0.65)	0.001	0.50 (0.31-0.80)	0.004
Hepatitis B Virus infection	No	1.00 (ref)			
	Yes	0.97 (0.61-1.55)	0.92		
Ever cigarette use	No	1.00 (ref)			
	Yes	0.57 (0.38-0.87)	0.01		
Nadir CD4	≤200	1.00 (ref)			
	>200	1.37 (0.90-2.09)	0.14		
Deyo w/o AIDS & Diabetes	0	1.00 (ref)		1.00 (ref)	
	1	0.50 (0.23-1.10)	0.08	0.51 (0.23-1.11)	0.09
	>1	0.66 (0.32-1.37)	0.26	0.61 (0.29-1.28)	0.19

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RESULTS

- 2,689 HIV/HCV co-infected veterans.
- Over a median follow-up of 5.0 (SD, 3.4) years, 88 patients (3.3%) developed HCC.
- Increased risk of HCC associated with older age at HCV diagnosis:
 - 40-50y vs. <40y; Adj HR=1.92 (95% CI 1.05-3.50)
 - >50y vs. <40y; Adj HR=3.73 (95% CI 1.94-7.16)
- Risk of HCC was lower among persons using alcohol and antipsychotics, and among those persons with multiple comorbid conditions.
- Percent undetectable HIV viral load and CD4 count (nadir or most recent) were not associated with the risk of developing HCC.



CONCLUSIONS

- HCC is common in HIV/HCV co-infected patients with cirrhosis (3.3% of patients developed HCC).
- Risk of progression was highest among persons aged over 50 years at HCV diagnosis.