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Hepatitis C Coinfection and Extrahepatic Cancer Incidence among People with HIV

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BACKGROUND

- Hepatitis C virus (HCV) coinfection increases cancer risk among people with HIV
- Few studies have explored extrahepatic cancer risk
- Objectives:
  - Assess incidence of extrahepatic cancer among HIV/HCV coinfected patients
  - Determine potential impact of HCV treatment using direct-acting antivirals (DAAs) on extrahepatic cancer risk

METHODS

- Adults in HIV care at a CFAR Network of Integrated Clinical Systems (CNICS) site during 1995-2018
- Excluded patients with previous cancer diagnoses or without HCV testing
- HCV infection defined as HCV antibody or detectable RNA at baseline
  - HCV infection redefined as detectable HCV RNA in sensitivity analyses
- Cox proportional hazards models to estimate hazard ratios (HRs) with 99% CIs to account for multiple testing
- Standardized morbidity ratio weights to estimate potential effect of DAAs on extrahepatic cancer risk among coinfected patients

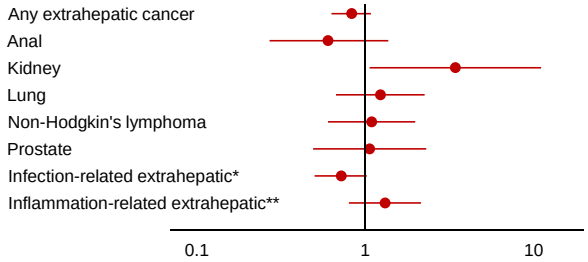
HCV coinfection was associated with **increased risk of extrahepatic cancers**, particularly kidney cancer, among people with HIV

Table 1. Characteristics of 21,310 patients with HIV, by HCV status

	HIV/HCV coinfection (n=3,823)	HIV monoinfection (n=17,487)
Median age in years (IQR)	44 (38, 50)	38 (31, 46)
Male	74.6%	80.2%
Race/ethnicity		
White, non-Hispanic	41.0%	41.5%
Black, non-Hispanic	46.3%	37.8%
Asian/Pacific Islander	1.2%	2.3%
Hispanic	8.9%	14.0%
Other	2.7%	2.4%
CD4 cell count (cells/μL)		
<200	26.0%	19.9%
200-500	42.4%	41.1%
>500	31.6%	36.9%
Suppressed HIV RNA (<200 copies/mL)	43.1%	53.4%
FIB-4*		
<1.45	53.8%	83.8%
1.45-3.25	32.7%	12.3%
>3.25	13.5%	1.9%

*Liver fibrosis was measured by FIB-4. The following formula is used to calculate FIB-4: age (years) × AST[U/L]/platelets[10^9/L] × (ALT[U/L])$^{1/2}$; where AST is aspartate aminotransferase, ALT is alanine aminotransferase, and U/L is units per liter.

Figure 1. Weighted hazard ratios and 99% CI for extrahepatic cancers among patients with HIV/HCV coinfection compared to those with HIV monoinfection



Standardized morbidity ratio weights included age, sex, race/ethnicity, calendar era of CNICS entry, HBV status, alcohol use, drug use, smoking, CD4 cell count, and HIV suppression. Patients with HIV monoinfection were weighted to reflect the distribution of confounders and liver fibrosis among HIV/HCV-coinfected patients.
*Anal cancer, anorectum cancer, cervical cancer, Hodgkin's Disease, Kaposi's sarcoma, Non-Hodgkin's lymphoma, and cancers of the oral cavity and pharynx
**Bladder cancer, colon cancer, esophagus cancer, lung cancer, multiple myeloma, pancreas cancer, and stomach cancer

RESULTS

- Patients with HIV/HCV coinfection were at elevated risk of kidney, lung, and inflammation-related cancers in crude analyses
- In weighted analyses, patients with coinfection remained at increased risk of kidney cancer
- Results were similar when HCV defined as detectable HCV RNA only

CONCLUSIONS

- Future studies should assess the impact of DAAs on incidence of extrahepatic cancers, particularly kidney cancer, among people with HIV

CNICS CFAR Network Of Integrated Clinical Systems

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