MARKERS OF IMMUNOSUPPRESSION AND MORTALITY AMONG CANCER PATIENTS WITH HIV

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BACKGROUND

- People with HIV (PWH) have an elevated incidence of cancer (mainly virus-related cancers) due to immunosuppression.
- PHW who develop cancer also have a higher risk of dying from their cancer compared with immunocompetent cancer patients in the general population.
- No prior study has assessed HIV disease markers in relation to cancer-specific mortality among cancer patients with HIV.

METHODS

- Data source: HIV/AIDS Cancer Match Study, a linkage of US state HIV and cancer registries (2005-18).
- Subjects: PWH who developed 3 common cancers: anal cancer (N=765), lung cancer (N=682), or non-Hodgkin lymphoma (NHL, N=1173).
- Identified the most recent CD4 count and HIV viral load (VL) within the 6 months after cancer diagnosis.

Table: Associations of CD4 count and HIV viral load with cancer-specific mortality among cancer patients with HIV

	Anal cancer Adj HR (95%CI)	Lung cancer Adj HR (95%CI)	Non-Hodgkin lymphoma Adj HR (95%CI)
CD4 count, cells/mm^3			
0-199	2.00 (1.14-3.51)	2.05 (1.49-2.82)	1.52 (0.98-2.35)
200-349	1.01 (0.45-2.28)	1.60 (1.12-2.30)	0.73 (0.40-1.33)
350+	Reference	Reference	Reference
Missing	1.22 (0.62-2.41)	1.71 (1.22-2.39)	0.78 (0.44-1.40)
HIV viral load			
Detectable	1.73 (1.13-2.64)	1.04 (0.76-1.41)	1.10 (0.78-1.57)
Undetectable	Reference	Reference	Reference
Missing	1.19 (0.73-1.94)	0.91 (0.68-1.22)	1.16 (0.73-1.86)

Abbreviation: Adj HR= adjusted hazard ratio
Hazard ratios for CD4 count and HIV viral load are mutually adjusted for each other, and additionally adjusted for sex, HIV risk group, age, race/ethnicity, and calendar year of diagnosis.

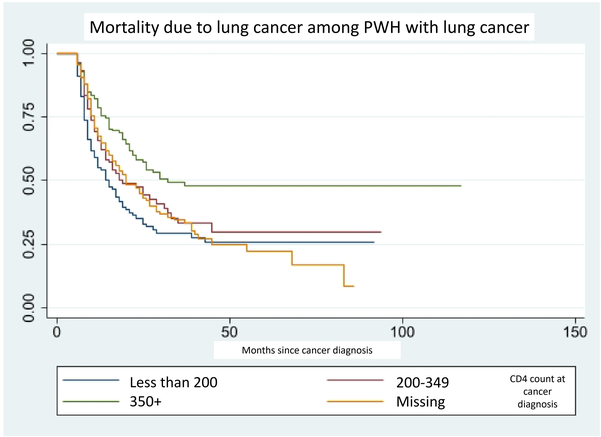
Among people with HIV diagnosed with cancer, the presence of a low CD4 count is associated with higher mortality from their cancer, supporting that immunity plays a role in preventing cancer relapse and death.

METHODS (continued)

- Outcome: death from cancer, identified from death certificates.
- Cox proportional hazards models were used to assess adjusted associations of CD4 count and HIV VL with cancer-specific mortality.

RESULTS (see Table)

- Among PWH with anal cancer, lung cancer, or NHL, a total of 134, 334, and 171 patients, respectively, died from their cancer.
- For anal cancer and lung cancer, PWH with CD4 counts below 200 cells/mm^3 had significantly increased cancer-specific mortality (adjusted hazard ratio [aHR] 2.00 and 2.05, respectively, compared to PWH with CD4 350+ cells/mm^3).
- For anal cancer, PWH with detectable HIV VL also had elevated cancer-specific mortality (aHR 1.73).
- The association between CD4 count and cancer-specific mortality was borderline for NHL.



CONCLUSIONS

- Among PWH with anal cancer, lung cancer, or NHL, a low CD4 count at the time of diagnosis was associated with an increased risk of subsequently dying from the cancer.
- Additional analyses need to be performed that further adjust for cancer stage at diagnosis and cancer treatment.
- Nonetheless, our findings support that immunity plays a crucial role in the control of certain malignancies and preventing relapse and death.
- Optimizing antiretroviral therapy to suppress HIV replication and restore immune function should be an important component of cancer treatment..

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