Association Between HIV Infection and Survival for Head and Neck Cancers in the US From 2008-2020

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BACKGROUND

- People with HIV (PWH) on anti-retroviral therapy live longer but are more prone to non-AIDS cancers like head and neck cancer (HNC), with incidence rates up to 4.1 times higher than people without HIV (PWoH) [1].
- Research on HIV's impact on HNC survival is limited, creating a crucial gap in understanding.
- We aim to assess the risk factors contributing to survival differences between PWH and PWoH in HNC.

[1] Beachler DC, D'Souza G. Oral human papillomavirus infection and head and neck cancers in HIV-infected individuals. Curr Opin Oncol. 2013 Sep;25(5):503-10. doi: 10.1097/CCO.0b013e32836242b4. PMID: 23852381; PMCID: PMC3896303.

METHODS

- A retrospective cohort of PWH and PWoH with newly diagnosed HNC between 2008-2020, followed through 2021, identified from patients receiving care at the US Department of Veterans Affairs and Kaiser Permanente, California.
- Hazard ratios for HIV status associated with survival up to 5 years were estimated from Cox proportional hazards models stratified by anatomical subtypes of HNC: oropharyngeal, non-oropharyngeal (including larynx and hypopharynx), and oral cavity, adjusting for baseline factors (refer to Figure 3 note).

RESULTS

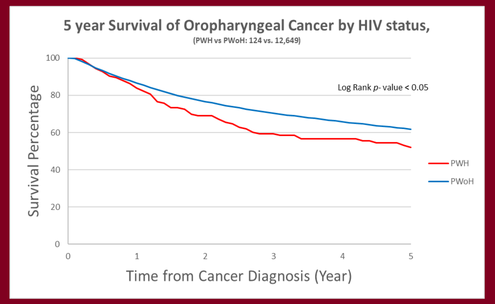
- Cohort: 296 PWH vs. 29,875 PWoH.
- PWH tend to be younger, male, with lower education and income, and having co-infections with HPV, HBC, or HCV.
- Mortality rates: PWH vs. PWoH were 13.0 vs. 9.7 per 100 person-years for oropharyngeal, 7.3 vs. 13.0 for oral cavity, and 12.0 vs. 14.0 for non-oropharyngeal cancers.
- Hazard Ratios: PWH had a significantly higher risk (38%) of death for oropharyngeal cancers compared with PWoH but non-significantly lower risk (6%) and significantly lower risk (34%) for non-oropharyngeal and oral cavity cancers, respectively.

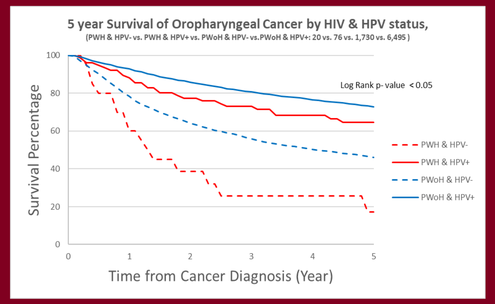
CONCLUSIONS

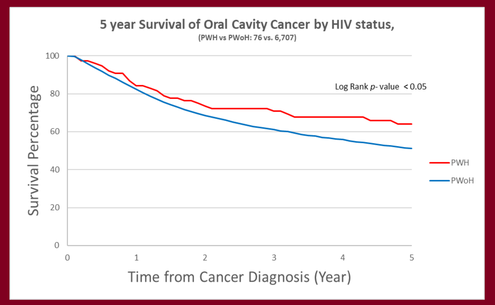
- Our study, the largest to our knowledge for HNC cases among PWH (N=296), explores how HIV infection influences survival in different anatomical subtypes and stages of HNC.
- Survival rates for oropharyngeal cancers are particularly impacted by HIV, possibly due to factors like weakened immune systems, higher HPV rates, delayed diagnosis, co-infections with HBC or HCV, and tumor behavior differences.
- Tailored approaches to diagnosing, treating, and monitoring HNC in PWH are essential for better outcomes.

HIV impacts overall survival in Head and Neck Cancer, with *higher mortality* for oropharyngeal cancers but *lower mortality* for oral cavity cancers, compared to PWoH

Figure 1. 5-year survival of head and neck cancer in people with HIV (PWH) compared with people without HIV (PWoH). (In clockwise direction: Kaplan-Meier survival curves for oropharyngeal cancer by HIV, oropharyngeal cancer by HIV and HPV, non-oropharyngeal cancer by HIV, and oral cavity cancer by HIV.







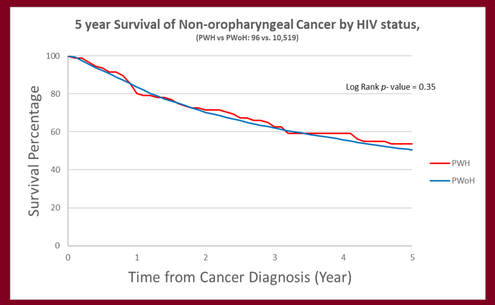
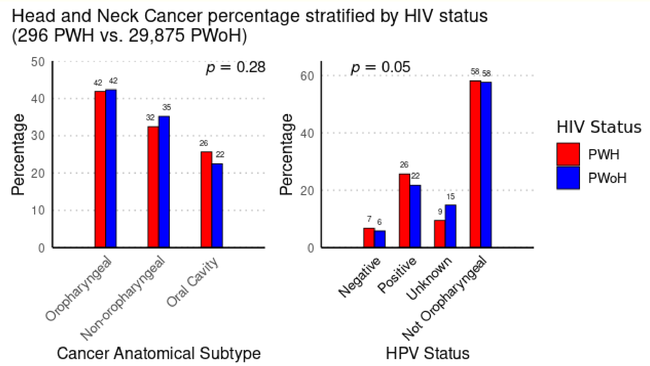


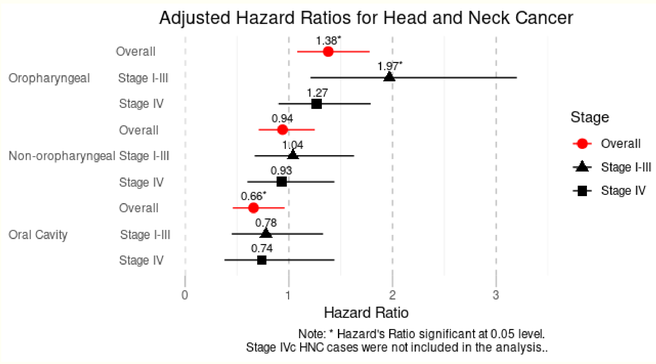
Figure 2. Percentage distribution of head and neck cancer patients, stratified by cancer anatomical subtypes and HIV status (left); and by stratified Human Papillomavirus (HPV) status and HIV status (right).



Note: HPV status was limited to oropharyngeal cancers and was unavailable for the initial two years. Not Oropharyngeal cancers consist of Non-oropharyngeal and Oral Cavity Cancers

Figure 3. Adjusted Cox proportional hazards associated with survival up to 5 years in the overall study sample and stratified by stage of cancer.

Note: All HRs were adjusted for age, sex, race/ethnicity, poverty, education, diagnosis year, stage of cancer, Deyo comorbidity index, smoking, substance use, kidney GFR, hepatitis B, hepatitis C, Human Papillomavirus, and organization.



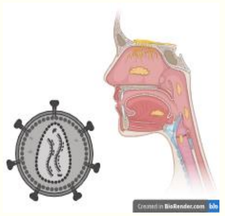
Note: * Hazard's Ratio significant at 0.05 level.
Stage IVc HNC cases were not included in the analysis..

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