Prevalence of chronic/latent viral infections and all-cause mortality risk among women living with HIV and HIV-negative women participating in the British Columbia CARMA-CHIWOS Collaboration (BCC3) study

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Background

- Women living with HIV (**WLWH**) experience age-associated diseases earlier in life and have shorter life expectancy compared to HIV-negative women, which suggests accelerated/accentuated aging.
- Persistent viral infections might further contribute to HIV-induced chronic inflammation and affect all-cause mortality risk.
- The BCC3 study examines healthy aging among **WLWH** and HIV-negative **controls** living in BC.

Methods

In this interim analysis, prevalence of **9** chronic **viral infections** was assessed by **serology:**

- HIV
- Epstein-Barr virus (EBV)
- hepatitis B and C viruses (HBV, HCV)
- herpes simplex viruses (HSV-1, HSV-2)
- human herpesvirus-8 (HHV-8)
- cytomegalovirus (CMV)

or **self-report** (varicella-zoster virus (VZV))

The Veterans Aging Cohort Study (**VACS**) **index**, which estimates **5-year all-cause mortality risk** based on clinical and demographic parameters (age, CD4 count, HIV RNA, hemoglobin, platelets, aspartate aminotransferase, alanine aminotransferase, HCV status) was calculated for **WLWH** and **controls**.

Results: prevalence of viral infections

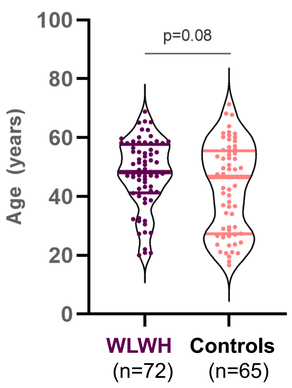


Figure 1. The age of **WLWH** and **controls** included in the analysis

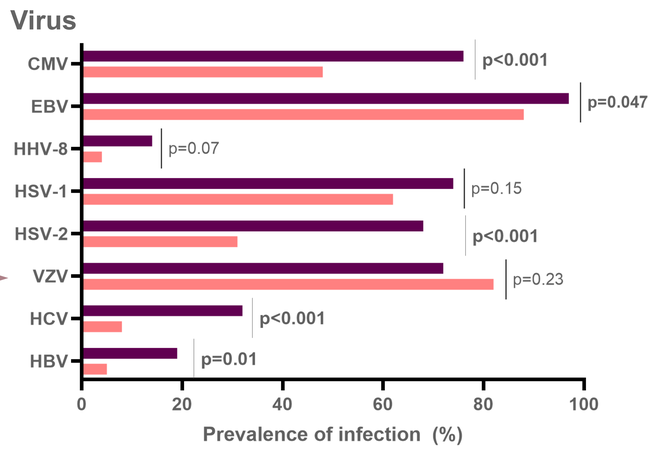


Figure 2. Prevalence of viruses of interest among **WLWH** and **controls**

The **age** of **WLWH** and **controls** **did not differ** – median (IQR) 48.3 (41.2 – 57.7) vs 46.6 (27.3 – 55.6), p=0.08 (Figure 1)

WLWH were **more likely** to harbor CMV, EBV, HSV-2, HCV, and HBV, **but not** HHV-8, HSV-1, or VZV compared to **controls** (Figure 2)

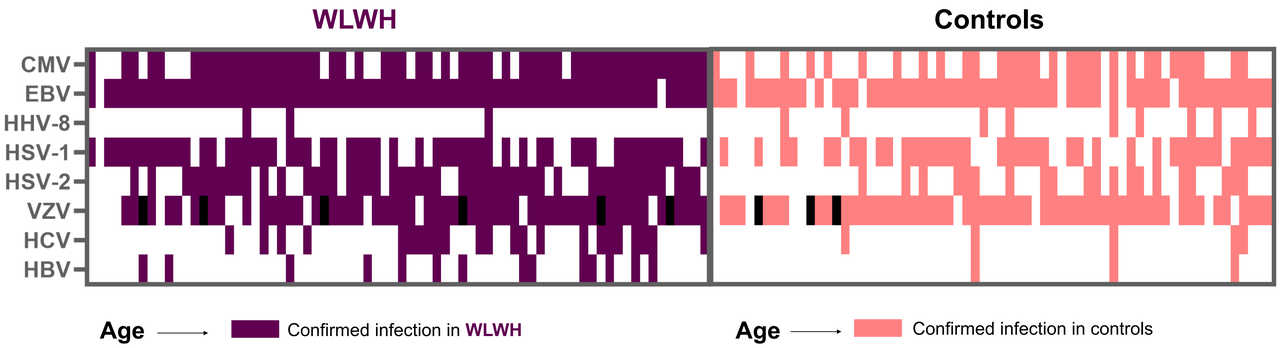
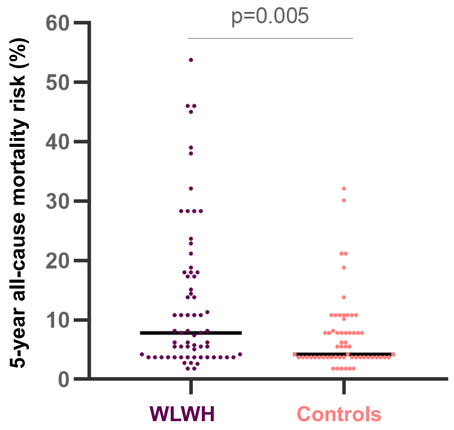


Figure 3. Prevalence of chronic viral infections among **WLWH** and controls. Participant age increases from left to right for both groups. Black boxes indicate "Don't know" response to the survey question about past VZV infection.

Results: VACS index (5-year all-cause mortality risk)



Despite **no age difference**, **WLWH** have **higher** median 5-year all-cause mortality risk compared to **controls** (Figure 4): **7.8%** (3.7 – 18.0) vs **4.2%** (3.7 – 8.0)

Both **WLWH** and **controls** in our analysis have higher VACS index compared to baseline (Figures 5,6).

Differences between **WLWH** and **controls** seem to be most pronounced after the age of 40 (Figures 5,6)

Figure 4. Calculated VACS score for **WLWH** and **controls**

VACS index for **WLWH** and **controls** <50 y.o.

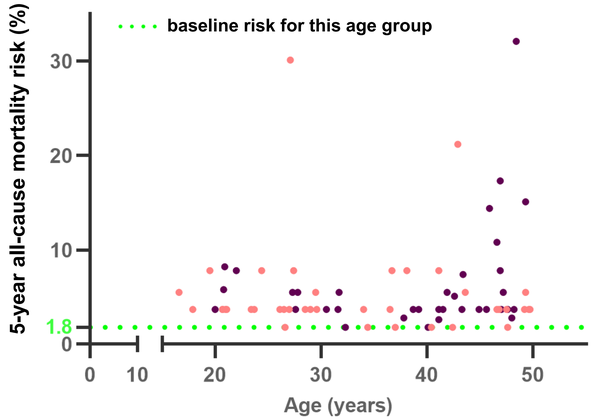


Figure 5. Calculated VACS index for **WLWH** and **controls** younger than 50 y.o. Green line – baseline risk for this age.

VACS index for **WLWH** and **controls** 50-65 y.o.

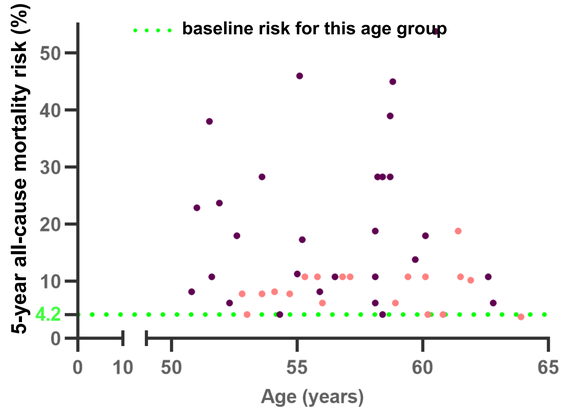


Figure 6. Calculated VACS index for **WLWH** and **controls** aged 50-65 y.o. Green line – baseline risk for this age.

Conclusions

Despite no observed age difference compared to controls, **WLWH** were **more likely** to have:

CMV, EBV, HSV-2, HBV, HCV

but not

VZV, HSV-1, HHV-8

WLWH showed almost **twice the risk** of mortality within 5 years compared to **controls**.

This risk may be mediated through inflammation and/or immune exhaustion, and clearly **warrants further investigation**.

We would like to thank the **BCC3** study team, participants, investigators, and staff.
The funding for this project was provided by **CIHR**, **CTN**, and **CBR**.
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