Long COVID Between People With and Without HIV: a Statewide Cohort Analysis

848

Xueying Yang[1], Ziang Liu[1], Jiajia Zhang[1], Bankole Olatosi[1], Sharon Weissman[1], Xiaoming Li[1]
[1]University of South Carolina, Columbia, South Carolina, USA

BACKGROUND

- People with HIV (PWH) have been documented to have an elevated risk of severe COVID-19 outcomes, yet the data on long COVID among PWH are limited.
- Chronic inflammation, immune dysfunction, and viral persistence documented in PWH might overlap with the mechanisms contributing to long COVID and thus increase the risk of long COVID in PWH.
- Large-scale real-world data are needed to investigate such a relationship.

AIMS

- Using a large, statewide sampled dataset, this study aims to characterize and compare the risks of a panel of post-acute sequelae of COVID-19 (PASC) between PWH and people without HIV (PWoH) comparison group.

METHODS

- Using an integrated statewide electronic health record data from HIV cohort and COVID-19 test cohort, we identified COVID-19 positive individuals by HIV status between March 02, 2020 and April 14, 2022 in South Carolina (SC).
- Using the COVID-19 diagnosis date as the index date, a total of 132 individual sequelae were ascertained through ICD-10 codes for the cohort.
- Logistic regression was employed to compare the risks of individual sequelae between PWH and PWoH groups.

RESULTS

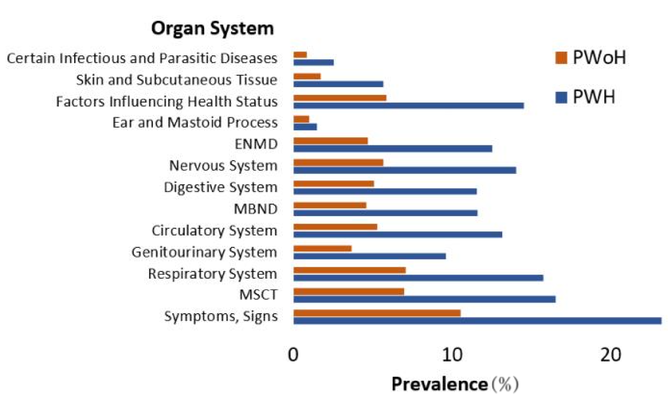


Figure 1 Comparison of the prevalence of long COVID by organ system between PWH and PWoH

Despite similar common long COVID manifestations, PWH appeared to have a higher risk of a variety of long COVID outcomes, particularly for Circulatory Disease and Mental and Behavioral Disorders/conditions.

RESULTS (continued)

- Among 1,351,489 COVID-19 positive individuals, 3,485 were PWH and 1,348,004 were PWoH. The prevalence of any long COVID condition was 58.68% and 33.80% for PWH and non-PWH, respectively. The top manifestations of long COVID are similar between PWH and PWoH, yet PWH had a persistently higher prevalence of PASC by organ system than PWoH (Figure 1).

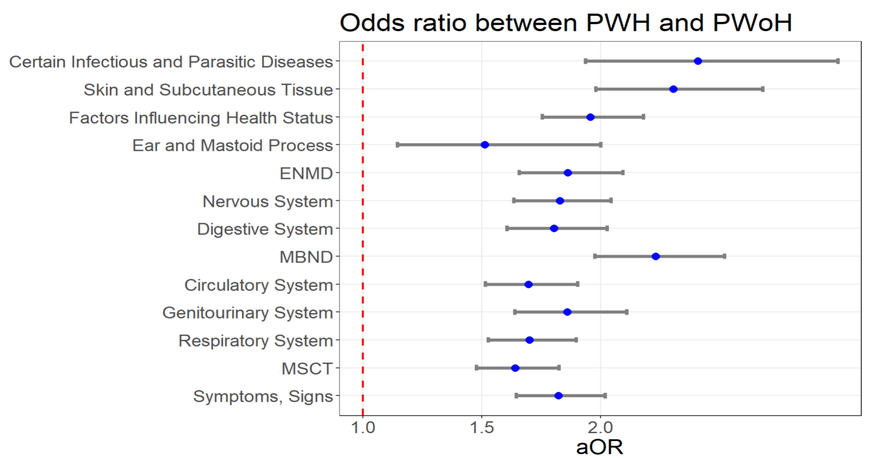


Figure 2 Estimated odds ratio for Long COVID sequelae by organ system between PWH and PWoH

Note: "ENMD": Endocrine, Nutritional and Metabolic Diseases; "MBND": Mental, Behavioral and Neurodevelopmental Disorders; "MSCT": Musculoskeletal System and Connective Issue; "Symptoms, signs": Symptoms, Signs and Abnormal Clinical and Laboratory Findings, Not Elsewhere Classified.

RESULTS (continued)

- After adjusting covariates, PWH were associated with a higher risk of 118 individual long COVID sequelae in nearly every organ system, such as Circulatory Disease (Encephalitis: adjusted odds ratio [aOR]:5.86, 95%CI: 2.37-14.48), Mental, Behavioral and Neurodevelopmental Disorders (Stimulant-related disorders: aOR:4.61, 95%CI: 3.31-6.43; Sedative-related disorders: aOR:3.20, 95%CI: 1.31-7.78; Miscellaneous Mental and Behavioral Disorders/conditions: aOR:3.03, 95%CI: 1.56-5.90) (Figure 2).

CONCLUSIONS

- This is one of the first large-scale population-based studies (n=~1.35 million) investigating the role of HIV infection in long COVID occurrence, which provide a more robust evidence of the potential elevated risk of long COVID in PWH.
- PWH appears to have a higher risk of various long COVID outcomes. These findings warrant further investigation to understanding how PWH status leads to worse long-term COVID-19 outcomes with more observational studies in persons with or without HIV.
- Further efforts will be needed to determine whether the development of Long COVID in PWH is influenced by vaccination status, acute COVID-19 treatment, and the emergence of new variants to the same degree that it might be in HIV-seronegative individuals.
- As the mechanisms of Long COVID in the general population are further delineated, these need to be examined in PWH, and attention needs to be paid to contributors that might be unique or more important in driving Long COVID among PWH.

AUTHOR CONTACT INFORMATION

Xueying Yang, PhD
Department of Health Promotion, Education and Behavior
Arnold School of Public Health
University of South Carolina
Email: xueyyang@mailbox.sc.edu

Big Data Health Science Center
UNIVERSITY OF SOUTH CAROLINA