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BACKGROUND

People with HIV (PWH) are at a higher risk of severe acute COVID-19; however, their risk of subsequently developing post-acute sequelae of SARS-CoV2 (PASC) remains unclear. Furthermore, although vaccination has been shown to be protective against PASC in the general population, few studies have evaluated its effectiveness in PWH.

METHODS

We used the TriNetX health research database to source data from 69 healthcare organizations within the US. We included any adults aged ≥ 18 years with positive SARS-CoV-2 between January 1, 2020 and September 16, 2022 and categorized them based on their HIV status, baseline sociodemographic characteristics, comorbidities and COVID-19 vaccination status. The primary outcome was risk of PASC, compared by HIV and vaccination status after 1:1 propensity score matching. PASC was defined as either the persistence of COVID-attributable symptoms or the occurrence of new-onset health conditions at least 28 days following COVID-19 diagnosis. For all analysis, statistical significance was set at $p < 0.05$.



- 170 healthcare, pharmaceutical & research organizations
- 400 million+ unique patients
- 30 countries

Outcomes	PASC risk		OR (CI)
	HIV +	HIV -	
Mortality	597 (2%)	31411 (1%)	2.01 (1.85, 2.18)
Diabetes	598 (3%)	33668 (1%)	2.61 (2.40, 2.83)
Heart Disease	763 (5%)	55872 (2%)	2.44 (2.27, 2.62)
Malignancy	517 (3%)	29644 (1%)	3.15 (2.89, 3.45)
Thrombosis	699 (3%)	32612 (1%)	3.04 (2.82, 3.28)
Mental Disorders	681 (9%)	72369 (3%)	2.79 (2.58, 3.02)

Outcomes	Effect of COVID-19 Vaccination		OR (CI)
	HIV + Vaccinated	HIV+ Unvaccinated	
Mortality	39 (2%)	62 (3%)	0.62 (0.42, 0.93)
Diabetes	27 (2%)	48 (4%)	0.51 (0.32, 0.82)
Heart Disease	33 (3%)	76 (7%)	0.44 (0.29, 0.67)
Malignancy	19 (2%)	43 (4%)	0.43 (0.25, 0.74)
Thrombosis	33 (2%)	62 (6%)	0.51 (0.33, 0.78)
Mental Disorders	24 (5%)	61 (9%)	0.49 (0.30, 0.79)

Acknowledgements: This work was funded by the University Hospitals Cleveland Medical Center and the Clinical and Translational Science Collaborative of Cleveland (UL1TR002548) from the National Center for Advancing Translational Sciences (NCATS) component of the NIH and NIH Roadmap for Medical Research.

RESULTS

Of 3,048,792 people with confirmed SARS-CoV-2 infection, 1% (n=28,904) were PWH, with 9% of PWH (n=2592) vaccinated. At 28 days post-COVID-19 diagnosis, PWH had lower mortality compared with their non-HIV counterparts (OR 0.78, 95% CI 0.70-0.87), but higher risk of developing new-onset diabetes (DM) (OR 1.26, 95% CI 1.11-1.42), heart disease (OR 1.27, 95% CI 1.14-1.41), malignancy (OR 1.66, 95% CI 1.45-1.89), thrombosis (OR 1.25, 95% CI 1.12-1.39) and mental health disorders (OR 1.70 (95% CI 1.53-1.90)). Furthermore, vaccinated PWH had significantly lower odds of death (OR 0.63, 95% CI 0.42-0.93) and each new-onset PASC outcome, as follows: DM (OR 0.51, 95% CI 0.32-0.82), heart disease (OR 0.44, 95% CI 0.29-0.67), malignancy (OR 0.43 (95% CI 0.25-0.74), thrombosis (OR 0.51, 95% CI 0.33-0.78) and mental health disorders (OR 0.49, 95% CI 0.30-0.79). The risk of PASC was higher during the pre-Delta variant period

CONCLUSIONS

HIV positive status confers a higher risk of PASC. Importantly, COVID-19 vaccination significantly lowered mortality and was protective against PASC among PWH. With the increase in the number of COVID-19 survivors, vaccination offers an effective preventive strategy to address a burgeoning public health problem.

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