EVALUATING THE EFFECT OF VACCINATION ON POST-COVID CONDITIONS AMONG PEOPLE WITH AND WITHOUT HIV

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BACKGROUND

- Post-COVID Conditions (PCC), also known as Long COVID, has been a prominent topic within the media
- Previous studies have evaluated post-COVID conditions[1], but the effect of vaccination has not been well studied among people with HIV (PWH).
- We evaluated the effect of vaccination on PCC within an integrated health system (Kaiser Permanente Mid-Atlantic States; KPMAS), for people with HIV (PWH) and people without HIV (PWoH)

METHODS

- We identified KPMAS members (≥18 years of age) with a positive SARS-CoV-2 PCR result between 1/1/2021-1/31/2022
- First positive result in this period defined the index date.
- Fully vaccinated was defined as having 2 or more doses of a Pfizer/Moderna COVID vaccine ≥14 days apart, or 1 dose of Janssen, ≥14 days prior to the index date
- AHRQ Clinical Classification Software, developed by the Healthcare Cost and Utilization Project (HCUP) for grouping of diagnoses into meaningful categories, was used to group ICD-10 codes for 17 previously-identified PCC-related conditions including anosmia, cardiac dysrhythmia, diabetes, malaise, and chest pain[2]
- PCC was defined as having at least one of the 17 conditions incident in the 30-180 days post first positive test. Prevalent PCC conditions identified in the 4 years prior to index date, and acute conditions in the 29 days post index date, were excluded from incident counts
- Adjusted relative risk, calculated with Poisson regression using robust variances, was used to evaluate the effect of vaccination and HIV status on PCC incidence
- The regression model and adjusted risk analysis included sex, race/ethnicity, age at index date, medical service area within KPMAS, COVID variant periods, HIV status, vaccination status and an interaction term of HIV status and vaccination

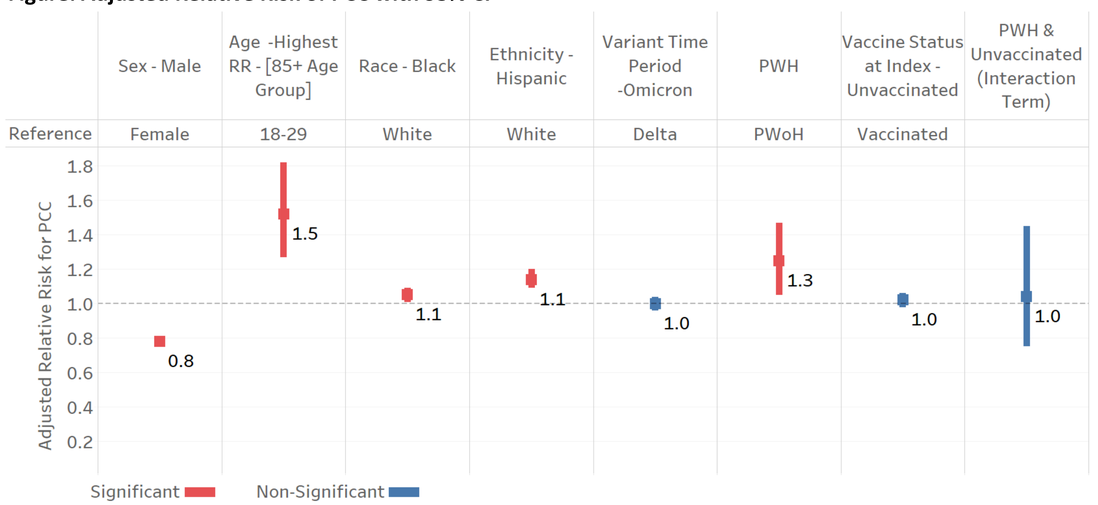
[1]Horberg MA, Watson E, et al. Post-acute sequelae of SARS-CoV-2 with clinical condition definitions and comparison in a matched cohort. Nature Communications 2022 Oct 12;13(1):5822
[2]AHRQ HCUP Clinical Classification Software (CCS) for ICD-10 CM in:2019. https://www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp

We did **not** find an association between COVID vaccination and incidence of post-COVID conditions in either people with HIV (PWH) or people without HIV (PWoH) receiving care in our health system

Table: Demographics - People with HIV (PWH) and People without HIV (PWoH) .

Demographics	PWH n(%); N = 492	PWoH n(%); N = 71,884
Sex, n(%)		
Female	173 (35.2%);	42,065 (58.5%);
Male	319 (64.8%)	29,819 (41.5%)
Age at Index Date [Median years (IQR)]		
Age	46.6 (36.5, 57.4)	43.1 (31.6, 56.1)
Race/Ethnicity, n(%)		
White	51 (10.4%)	15,865 (22.1%)
Black	402 (81.7%)	32,344 (45.0%)
Hispanic	26 (5.3%)	11,445 (15.9%)
Variant Time Period, n(%)		
Delta - (1/1/2021-10/1/2021)	175 (35.6%)	25,228 (35.1%)
Omicron - (10/2/2021-1/31/2022)	317 (64.4%)	46,656 (64.9%)
Vaccine Status at Index Date, n(%)		
Vaccinated	300 (61.0%)	40,320 (56.1%)
Unvaccinated	192 (39.0%)	31,564 (43.9%)

Figure: Adjusted Relative Risk of PCC with 95% CI



Note: Significance tested at a p-value <= 0.05 and noted where the bounds of the 95% CI are less than or greater than 1.0

RESULTS / DISCUSSION

- No interaction was found between PWH and vaccination status (p-value=0.81). After removing the interaction term:
  - PWH showed significant increased risk of PCC compared to PWoH (RR 1.25; 95% CI [1.05,1.25]; p=0.01)
  - Unvaccinated members did not show a significant increased risk of PCC compared to vaccinated members (RR 1.02; 95% CI [.98, 1.02]; p=0.27)
- After adjusting for demographic characteristics, vaccination status had no significant effect on PCC incidence in either PWH or PWoH; however, PHW did show increased risk of PCC compared to PWoH
- These findings suggest COVID vaccination may not be protective against PCC after a subsequent COVID infection

LIMITATIONS

- Retrospective study
- Limited to insured KPMAS population, although does include Medicare and Medicaid
- Prevalent conditions, conditions that would disqualify incidence, could be missed if diagnosed more than four years prior to COVID lab test date
- No manual chart review; novel diagnoses such as brain fog or postural tachycardia syndrome (PoTS) may not have been well classified

ADDITIONAL KEY INFORMATION

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