SARS-CoV-2 Seroprevalence Among People Who Inject Drugs in Baltimore

920

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BACKGROUND

- People who inject drugs (PWID) may be at a greater risk of SARS-CoV-2 infection and COVID-19 due to socio-structural inequities and high-risk behaviors.
- PWID have been underrepresented in case-based surveillance efforts due to lower access to and uptake of COVID-19 testing, and population-based data on SARS-CoV-2 infection risk among PWID are limited.
- We characterize trends and correlates of SARS-CoV-2 seroprevalence among a community-based sample of current and former PWID in Baltimore, Maryland.

METHODS

- A cross-sectional study of 561 participants was nested within the AIDS Linked to the IntraVenous Experience (ALIVE) study—a community-based cohort of current and former PWID in Baltimore, Maryland.
- Participants' first serum sample collected at semi-annual study visits between December 2020 and July 2022 was assayed for antibodies to the nucleocapsid (N) (past infection) and spike-1 (S) (past infection and/or vaccination) proteins using the quantitative Mesoscale Diagnostics (MSD) V-Plex Panel 2 IgG SARS-CoV-2 assay.
- We estimated adjusted prevalence ratios (PR) of seroprevalence via modified Poisson regression models adjusted for calendar time, age, sex and race & ethnicity.
- All participants were 18 years of age or older and provided written informed consent. The study was approved by the Johns Hopkins School of Medicine IRB.

RESULTS

- Sample characteristics (n=561):
  - Median age = 59 years (range=28-77)
  - 35% were female
  - 84% were non-Hispanic Black
  - 36% were living with HIV (97% on antiretroviral therapy)
  - 55% had received at least 1 COVID-19 vaccine dose
- Prevalence of anti-N was 26% (95% CI: 22 to 30) and prevalence of anti-S was 63% (95% CI: 59 to 67).
- The prevalence and magnitude of anti-N and anti-S increased over the study period (Fig. 1 and Fig. 2).
- Correlates of anti-N prevalence: female sex (-), never married (+), employed (+), and a cancer history (-) (Fig 3).
- Correlates of anti-S prevalence: younger age (-), female sex (-), homelessness (-), HIV infection (+), and prior receipt of a COVID-19 vaccine (+) (Fig. 3).

SARS-CoV-2 seroprevalence increased over time among PWID and there were differences in anti-N and anti-S antibody levels by demographic and socio-structural factors, highlighting populations that may require targeted COVID-19 vaccination efforts.

Figure 1. Probability of anti-N and anti-S detection over calendar time.

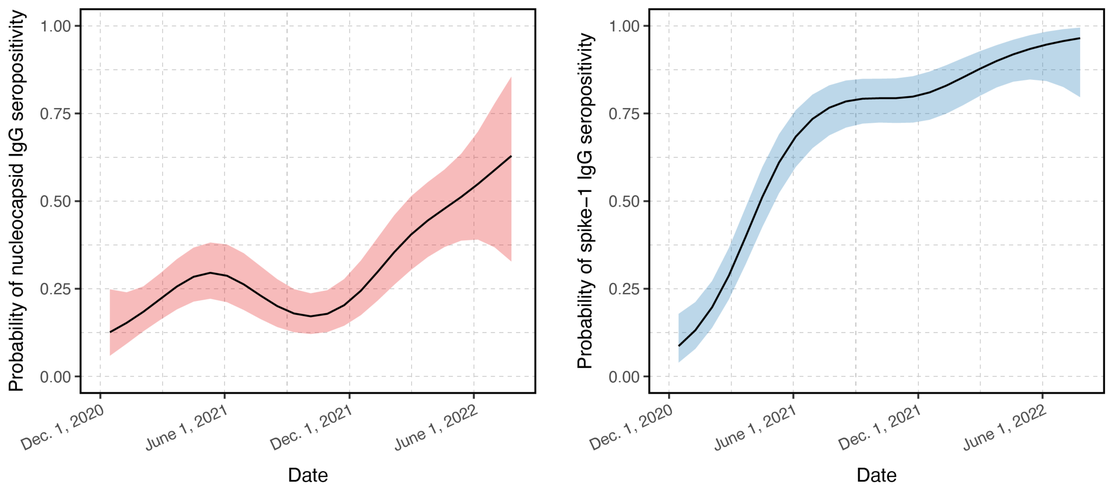


Figure 2. Magnitude of anti-N and anti-S levels by calendar period.

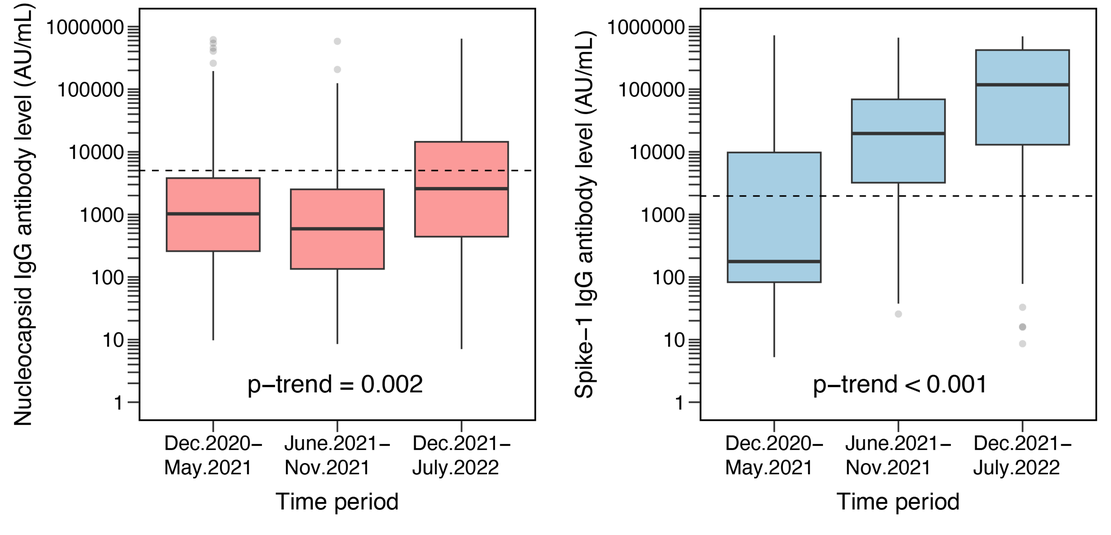
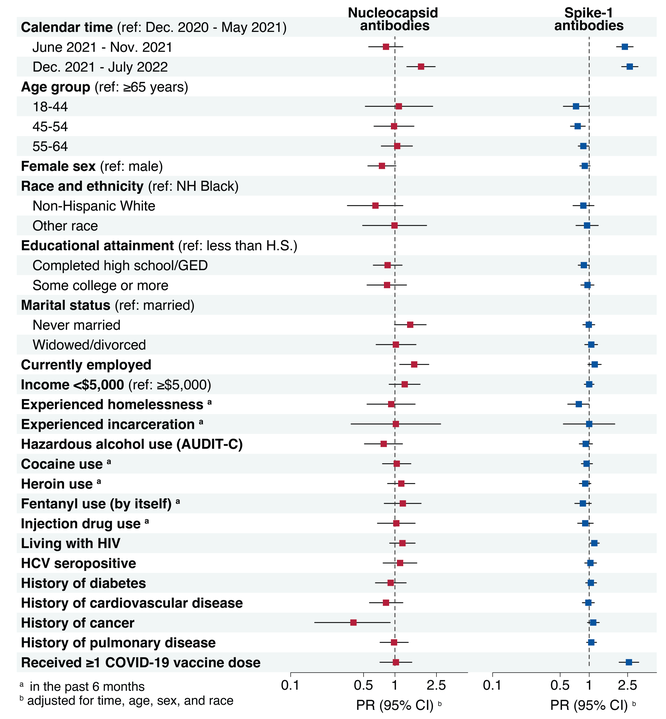


Figure 3. Correlates of anti-N and anti-S detection.



CONCLUSIONS

- Anti-N and anti-S levels differentially increased over time, suggesting cumulative increases in SARS-CoV-2 incidence of infection and vaccination among PWID.
- Substance use behaviors were not associated with anti-N suggesting they may not be risk factors for infection.
- There were demographic and socio-structural disparities in anti-N and anti-S prevalence. For example, younger and female PWID and those who had experienced homelessness were less likely to have anti-S antibodies.
- Increased efforts are needed to improve COVID-19 vaccination in such vulnerable populations among PWID.

ADDITIONAL KEY INFORMATION

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