Vaccination among People Living with HIV

Figure 1. Neutralization of B.1.1.7 (Alpha), B.1.351 (Beta), and B.1.617.2 (Delta) lineages in sera from participants who received Ad26.COV2.S: n = 6 samples at Day 29 and n = 14 (n = 14 for Alpha and Beta; n = 6 for Delta, comprising the same 6 participants at Day 29) samples at Day 71 after vaccination with a single dose of Ad26.COV2.S (5 × 10¹⁰ vp dose level) were analyzed in wild-type virus neutralization assays against the SARS-CoV-2 Victoria strain (D614G, black dots), the B.1.1.7 (Alpha; green dots) the B.1.351 (Beta; blue dots), and the B.1.617.2 (Delta; purple dots) lineages.

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Background. Limited data are available on whether there are differences in the immune response to SARS-CoV-2 vaccination by HIV status or by mRNA vaccine type.

Methods. We saved residual outpatient laboratory samples of all previously mRNA-vaccinated individuals in the adult medicine clinics of a public hospital with a large outpatient HIV clinic during May 2021, and then excluded individuals with prior SARS-CoV-2 infection. We next 1:1 matched 100 PLWH to 100 outpatient HIV-negative individuals receiving care for chronic medical conditions on days since completion of second vaccination (minimum 10), sex, age +/-5 years, and the type of mRNA vaccine received. We defined a non-response as reciprocal pseudovirus neutralizing titer <10 and anti-RBD IgG<10 relative fluorescent units, and compared non-response by HIV status using mixed models.

Results. In each matched group there were 13 women; 25 received the mRNA-1273 vaccine and 75 received the BNT162b2 vaccine; the median age was 59. The median time from second vaccination was 35 days (IQR: 20–63). Among PLWH, the median CD4+ T-cell count was 511 (IQR: 351–796) and 5 individuals had HIV RNA >200.
LB10. Impact of SARS-CoV-2 Delta Variant on the Spectrum of Pediatric COVID-19 Disease in Arkansas
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Background. Pediatric SARS-CoV-2 infection is generally thought to be asymptomatic or result in mild COVID-19 disease, with a paucity of severe outcomes. However, SARS-CoV-2 variants, notably B.1.617.2 (WHO Delta), have changed the clinical landscape of COVID-19 in the United States. Delta became the dominant variant in Arizona (AR) the 1st week of July 2021. Schools contributed to pediatric infections during the January 2021 surge in COVID-19 infections even with physical mitigation measures (PMM) that were removed in March 2021. We present preliminary data suggesting a shift in the clinical presentation of children with Delta variant infection.

Table 1.

| Peak Month | July 2020 | January 2021 | July 2021 | p-value |
|------------|-----------|--------------|-----------|---------|
| Cases      | 3268      | 11735        | 8031      |         |
| Hospitalization | 55 | 74 | 105 | <0.0001 |
| ICU Admission | 6 | 11 | 18 | 0.0016 |
| Mechanical Ventilation | 2 | 2 | 8 | 0.0034 |
| Death      | 0         | 0            | 1         | 0.3487 |

Methods. Pediatric (ages ≤18 years) case records for the 3 months representing key infection points of the COVID-19 Pandemic in AR were reviewed. Outcomes (hospitalizations, ICU admission, mechanical ventilation, death) were recorded by the Arkansas Department of Health (ADH) in a statewide database. Fisher’s Exact Test was used with p-values < 0.05 indicating statistical significance.

Results. During July 2020, 3,268 pediatric cases were reported to ADH with 55 hospitalizations, 6 ICU admissions, 2 mechanical ventilations, and no deaths. A second peak in January 2021 included 11,735 pediatric cases, a 259.1% increase. Increases were also seen in hospitalizations (n=74), ICU admissions (n=11), and mechanical ventilations (n=2). No deaths reported. The beginning of an exponential growth in cases during July 2021, before the opening of schools, included 8,031 pediatric cases. Despite 91.6% fewer cases than the previous peak, hospitalizations increased 41.9% (n=105) (p < 0.0001) and included increases in ICU and ventilator use of 68.6% (n=18) (p=0.0016) and 300% (n=8) (p=0.0034), respectively. One pediatric death was reported. (Tbl 1)

Conclusion. In the absence of PMM and despite the summer closure of schools, pediatric COVID-19 cases and severe outcomes increased significantly. Initial analysis of the AR July 2021 Delta variant surge indicates a statistically significant increase in pediatric COVID-19 disease and severity as indicated by a proportional increase in hospitalizations, ICU, and ventilator use. Further studies are warranted to better define Delta related childhood disease. Our findings also have implications for school PMM efforts.

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