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ABSTRACT SUBMISSION FORM

CHRD 2022: Abstract & Poster Submission Form

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Presenter Status

- Undergraduate Students
- Masters Student
- PhD Student
- Post-Doctoral Fellows
- Residents
- Non-Trainee

Research Category

- Basic Science
- Clinical
- Community Health / Policy

Role in the project

- Design
- Perform Experiments
- Analyze Data
- Write Abstract

Title

Predictors of SARS-CoV-2 IgG antibody levels following two COVID-19 vaccine doses: results from the CHILD COVID-19 Add-on Study.

Background

COVID-19 vaccine immune responses vary among individuals and wane over time. The variation and timing of this immune response is not fully understood, particularly in children.

Objective

This research aims to identify health and sociodemographic factors associated with vaccine-induced SARS-CoV-2 antibody levels among Canadian children and adults.

Methods

This study included a subset of children (N=172; mean age: 12.5±1.5 years) and adults (N=1159; 43.7±5.9 years) vaccinated with two doses recruited from the ongoing CHILd Cohort Study. Participants received dried blood spot sampling kits between March 2021 and January 2022. SARS-CoV-2 anti-spike IgG antibody levels were quantified using automated chemiluminescent ELISAs and expressed in scaled luminescence. Demographic, vaccination, and health information were collected via online questionnaires. Associations were determined by linear regression.

Results

In our cross-sectional data, for both children and adults, the highest antibody levels were observed around three months post-vaccination and did not differ by sex. In a multivariable model, higher antibody levels were associated with: previous SARS-CoV-2 infection ($\beta=0.20$; 95%CI 0.11, 0.29), age <18 years ($\beta=0.11$; 95%CI, 0.01, 0.21), and receiving the Moderna vaccine for both doses (vs. a combination of Moderna or Pfizer and AstraZeneca vaccines; $\beta=0.17$; 95%CI 0.06, 0.29), while lower antibody levels were associated with receiving the AstraZeneca-Oxford vaccine for both doses ($\beta=-0.20$; 95%CI -0.73, -0.29), and being >6 months post-vaccination (vs. <1 month; $\beta=-0.28$; 95%CI -0.44, -0.12).

Conclusion

Antibody levels following COVID-19 vaccination are associated with age, previous SARS-CoV-2 infection, vaccine type, and time since vaccination. We are currently investigating other potential correlates of vaccine responses to determine if these predictors differ among children vs. adults, and exploring the role of pre-existing health conditions.

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