

VAC_11 - Humoral immune response of allergic subjects vaccinated against COVID-19

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Introduction: The COVID-19 pandemic has raised concerns about the impact of the disease on subjects with allergies, especially those with asthma and rhinitis. The association between respiratory allergy and COVID-19 vaccination has not been investigated so far and it is urgent to understand this association for public health purposes.

Objectives: The study aimed to evaluate the humoral immune response to SARS-CoV-2 in subjects with or without respiratory allergy after COVID-19 vaccination in Brazil.

Methodology: A total of 142 subjects who received at least 3 doses of COVID-19 vaccines (26 y.o.±7.4) were recruited for the study in a University Hospital in Uberlândia-MG. Clinical questionnaires (RCAT and ACT) and SPT with *Dermatophagoides pteronissynus* (DPT) and *D. farinae* (DF) house dust mite extracts were considered to determine allergic rhinitis and asthma status. Specific IgE to DPT and DF, IgG to SARS-CoV-2 were assessed by ELISA and neutralizing antibody levels (nAbs). Presence/absence of adverse reactions due to COVID-19 vaccines in primary and boost doses were investigated.

Results: 91 subjects (64.1%) had allergic rhinitis, in which 12 (10%) were also asthmatics, and 51 were non- allergic (35.9%). Among allergic subjects, 78 had positive SPT for DPT/DF, with no significant difference between mite species. IgE levels were also higher to both DPT and DF allergens ($p < 0.0001$), compared to non- allergic subjects. Poor correlation was observed between mite-specific IgE and SARS-CoV-2 specific IgG ($r=0.156$; $p=0.221$) or nAbs ($r= 0.059$; $p= 0.649$). Allergic and non-allergic subjects had also similar IgG ($p=0.997$) and nAbs levels ($p=0.404$). Presence of adverse reactions were higher ($p<0.01$) in subjects who were primed with Pfizer-BioNTech vaccine, compared to AstraZeneca/Fiocruz and Sinovac without difference among later. Same profile was observed between allergic and non-allergic.

Conclusion: Subjects with allergic asthma and rhinitis fully vaccinated do not differ in humoral immune response to SARS-CoV-2, suggesting that allergy is not an issue for COVID-19 vaccine efficacy.

Keywords: Covid-19, vaccine, allergy