

VAC_02 - Subjects with respiratory allergy experience distinct adverse effects with COVID-19 vaccines

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Introduction: The onset of COVID-19 pandemic led to an unseen worldwide effort to control the disease through mass vaccination. In Brazil, along with inactivated virus, both mRNA and adenoviral vector vaccines have become the leading options in vaccination campaigns, notably decreasing hospitalizations, severity of illness, and death rates. However, the association between respiratory allergy status and vaccine adverse effects is poorly understood, even for COVID-19.

Objectives: This study investigated the main adverse effects following COVID-19 vaccination, particularly in atopic and non-atopic individuals.

Methodology: A total of 305 subjects (18-59 years old) receiving BNT162, ChAdOx1, or CoronaVac vaccines were recruited at the Federal University Hospital in Uberlândia, Minas Gerais, Brazil. Clinical questionnaires, Skin Prick Test (SPT) and house dust mite-specific IgE levels (ELISA index) were considered to assess atopy status. Adverse effects throughout vaccine shots were self-reported and scored.

Results: 54.4% of subjects were atopic, with higher wheal size (5.5mm) and IgE ELISA Index, compared to non-atopic (2.4 vs 0.7, $p < 0.0001$, respectively). In general, a notable presence of adverse effects following the first and third shots. ChAdOx1 recipients experienced higher adverse effect scores compared to BNT162 and CoronaVac recipients ($p < 0.05$), including headache (22.9%), muscle pain (31.3%), fever (26%), chills (12.5%), nausea (11.6%), and flu-like symptoms (9.4%). CoronaVac presented similar profile in both atopic and non-atopic. Atopic subjects receiving ChAdOx1 reported more adverse effects, particularly muscle pain, fever, and chills, compared to non-atopic individuals ($p < 0.05$). However, for BNT162, headache was most prominent in non-atopic ($p < 0.05$).

Conclusion: Atopic and non-atopic subjects exhibit a distinct adverse effect profile for mRNA and viral vector vaccines. These findings highlighted the necessity of providing guidance on potential adverse effects when administering different types of COVID-19 vaccines, particularly in atopic patients.

Keywords: Atopic; Adverse effects; Vaccines