



## **SARS-CoV-2 Spike Antibody Levels Trend among Sinopharm Vaccinated People**

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### **Dear Editor-in-Chief**

In global race of synthesizing COVID-19 vaccines, China based biopharmaceutical companies have made huge efforts. The China National Pharmaceutical Group Corporation (CNPGC) Sinopharm vaccine is one of two inactivated virus SARS-CoV-2 vaccines (1). The phase III clinical trials of the vaccine revealed 79% effectivity; however, the interim analysis from UAE showed 86% effectivity of Sinopharm COVID-19 vaccine (2-3). For mass vaccination, the Drug Regulatory Authority of Pakistan has approved Sinopharm, CanSinoBIO, Sinovac, AstraZeneca, and Sputnik V (4). The Strategic Advisory Group of Experts on Immunization (SAGE) has recommended Sinopharm vaccine on 2 dose schedule given around 3-4 weeks apart (5).

We aimed to determine the SARS-CoV-2 spike protein antibody levels among 2868 COVID-19 vaccinated group of individuals. Antibodies level more than 1.5 U/ml is considered to be positive. Spike antibody level depict humoral immunity element of defence. Cellular immunity is not assessed in laboratory in routine. It has been observed that patients got re-infection after recovery from SARS-CoV-2 infection or even after vaccination and possessed low level of spike protein antibody to less than 1-3 U/ml. Recently, we have also examined strong positive results (85%)

with SARS-CoV-2 spike protein antibodies among Sputnik V first dose vaccinated people (6).

The SARS-CoV-2 has been emerged as serious public health concern (7-10). Usually, the antibodies can protect for a few months, however the level of antibodies needs to be monitored so that booster doses could be taken with time. The anti-Spike protein antibody test was performed on automated analyzer Cobas Modular System 6000 from Roche Diagnostics Germany, with test sensitivity and specificity of 100% and 99.8% respectively. Among the vaccinated subjects, after 1<sup>st</sup> dose of administration, on average the spike protein antibody titer was 9.53 AU/ml (9.26 BAU).

After administration of booster (second) dose, among majority of individuals the spike protein antibody level was approximately 158.63 AU/ml (154.18 BAU). Afterwards, we observed antibody follow up of the vaccinated group of individuals after two weeks. Interestingly, level of antibody decreased significantly to about 92.2 AU/ml (89.61 BAU). We examined the follow up of the vaccinated group, and found consistent decrease in antibody levels of spike protein of approximately 71.65 AU/ml (69.64 BAU).



The average rate of fall of spike protein was approximately 1.71 AU/ml (1.66 BAU) per day. Of note, upon administration of third dose of Sinopharm to a few subjects the spike protein antibody levels were significantly enhanced >250 AU/ml. Among subjects with previous history of COVID-19 infection the levels of spike protein antibody remained >250 AU/ml post second dose administration. The spike protein antibody level reached peak at 3-4<sup>th</sup> week after the second dose administration. We followed up these subsequently at two to three weeks intervals. It was observed that at 3<sup>rd</sup> and 4<sup>th</sup> week, most of the patient's antibody level had fallen to one digit and few were negative. Few of them got re-infection as well, although good point is that none of them had critical disease or hospitalization and recovered well in few days. The average rate of fall remained 1.71 AU/ml or 1.66 BAU. Those who received 3<sup>rd</sup> dose had within 3-4 months post second dose had a significant response in spike protein above >250 AU/ml. Furthermore, in our future study, we need to follow up the trend and antibody levels for further period of time. Based upon the analysis, it can be speculated that two doses of Sinopharm may not be adequate to provide long lasting immunity against SARS-CoV-2. And third dose of Sinopharm, if provided may significantly improve spike protein antibody levels.

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