

Field evaluation of BNT162b2 COVID-19 vaccine response in healthcare workers: a 3-month follow-up

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Background:

Effective and rapid immunologic response to vaccines is a crucial strategy for the control SARS-CoV-2 pandemic. Here,

we present the results of an ongoing longitudinal observational study conducted among the healthcare workers (HCWs) of the Pineta Grande Hospital (Castel Volturno, Italy), who were administered the two-dose prime-boost mRNA vaccine BNT162b2.

Methods:

Volunteer HCWs underwent either (i) six RT-PCR assay for qualitative detection of SARS-CoV-2 nucleic acid in nasopharyngeal/oropharyngeal swabs; (ii) or six quantitative serology testing for the research of virus-specific immunoglobulins (Ig) through chemiluminescent immunoassay with a reactivity cut-off of an Index of ≥ 1.0 . The first tests were taken before the administration of the vaccine and then according to a predefined timeline. An active surveillance follow-up of SARS-CoV-2 infections was set amongst the vaccinees after the end of the study.

Results:

Overall, among the 435 HCWs who accepted to participated in the study, 9.3% reported a previous laboratory-confirmed infection with SARS-CoV-2, though all subjects tested negative at the time of first vaccine dose. In the swab cohort, seven subjects tested positive in the first 15 days after the first vaccine dose and one about a week from the second dose. At 45- and 60-day follow-ups all vaccinees tested negative, but two positive tests were registered at the third month. In the second cohort, two weeks after the first vaccine dose anti-SARS-CoV-2 antibodies exceeded the reactivity cut-off in 82.5% the participants. At one-month follow-up, almost all (98.4%) the vaccinees had reached the maximum Index value of 10. No statistically significant associations were found between antibody response and HCWs' characteristics.

Conclusions:

Our results showed that surveillance is a critical component of providing safe healthcare during COVID-19 pandemic, also after extended vaccination campaigns, thus enhancing the protection of patients and HCWs.

Key messages:

- All healthcare facilities should implement continuous post-vaccination surveillance programs in order to ensure patients and healthcare workers safety, and limit in-hospital transmission of SARS-CoV-2.
- Longer field follow-ups are indispensable to investigate immunogenicity trends and effectiveness of COVID-19 vaccines over time, and to consider booster doses, especially in high-risk population.