

SARS-CoV-2 breakthrough infection and death in COVID-19 vaccines recipients in North of Iran in 2021

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Abstract

Aim: This study aimed to assess the cases of SARS-CoV-2 breakthrough infection and death among AZD1222, Sinopharm, Sputnik V, Soberana, and COVAXIN vaccines receivers in Mazandaran. **Methods:** This retrospective cohort study was involving 320260 cases who received fully vaccinated (two doses) with five types of COVID-19 vaccine (ChAdOx1 nCoV-19, Sinopharm, Sputnik V, Soberana, and COVAXIN) between February 2021 to August 2021 in the Mazandaran province. The outcomes of interest were SARS-CoV-2 breakthrough infection and death due to COVID-19 after vaccination. Data were analyzed using R software. **Results:** Among 320260 COVID-19 vaccine recipients, 712 (0.22%) cases of SARS-CoV-2 breakthrough infections were identified and 94 (0.029%) hospitalized patients died from COVID-19. The cases of SARS-CoV-2 breakthrough infections were in Sinopharm (0.26%), ChAdOx1 nCoV-19 (0.09%), Sputnik (0.21%) Soberana (0.01%) and Covaxin (0.38%), respectively. The cases of death in vaccine recipients in Sinopharm, AZD1222, Sputnik, Soberana, and Covaxin were 81, 11, 1, 1, and 0 cases, respectively. A significant difference was observed between COVID-19 vaccines in terms of death ($P < 0.05$). **Conclusion:** Based on the findings, the most cases of SARS-CoV-2 breakthrough infection and death were observed in Sinopharm vaccine receivers.

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