

Contributions to the mitigation of the COVID-19 pandemic

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Dear editor,

Kim et al. performed an excellent retrospective cohort study in 325,157 from the United States showing that immunity from prior SARS-CoV-2 infection effectively protects against re-infections and lasts for at least 13 months [1]. Overall protection against re-infection was reported to be 85.7% (95% CI: 82.2 to 88.5). I wish to discuss some important secondary outcome analyses of this manuscript.

It was reported that in vaccinated patients, comprising approximately a quarter of the study population, those with a previous infection had an estimated effectiveness of 86.8% (95% CI: 74.5 to 93.2) against re-infections. This finding of a similar protection against re-infection in this subgroup and in the overall study cohort might hypothetically indicate waning efficacy of vaccines. Unfortunately, Kim et al. noted partially missing data on vaccination status because many vaccinations took place outside of their health system. Nevertheless, I encourage the authors to aim for data completion and/or present the overall infection rates in the vaccinated group versus the remainder study population with unclear vaccination status. It can be estimated that many, probably the majority, of participants with unclear vaccination status were not fully vaccinated before July 1, 2021, so that vaccination efficacy could be roughly estimated. In this context, other studies reported waning efficacy of vaccination against COVID-19 but with different effect sizes, thus requiring further data such as those hopefully provided by Kim et al in future analyses [2, 3].

When interpreting re-infection data, it has to be considered that seroprevalence surveys suggest that in the United States 2.1 infections occurred per reported SARS-CoV-2 case [4]. This along with the lower testing frequency in previously SARS-CoV-2 infected participants versus the control group (5.4 versus 7.0%) has to be taken into account when discussing the finding that there was no

significant difference in diseases severity comparing re-infected patients versus patients with a first SARS-CoV-2 infection. Importantly, data from a large survey in Qatar indicate that reinfections had 90% lower odds of hospitalization or death when compared to primary infections [5]. Therefore, I would be cautious with drawing firm general conclusions on disease severity of reinfected patients. My final remark is that in the study by Kim et al, it would be of interest to evaluate whether the efficacy of protection against re-infections differs in those with and without symptoms at their initial SARS-CoV-2 infection.

Taken together, in concert with vaccines and additional preventive and therapeutic measures against COVID-19, the accumulating evidence on the efficacy, duration and high prevalence of natural immunity, significantly contributes to the mitigation of the COVID-19 pandemic [5-9].

Funding

There was no specific funding for this work.

Conflicts of interest

The author reports no conflicts of interest

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doi:10.1056/NEJMc2110300. Online ahead of print.

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