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Short Communication

Third Doses (Booster) of COVID-19 Vaccination

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Flaxman., *et al.* a groups of investigators from the University of Oxford, United Kingdom demonstrated the results studied in COVID-19-vaccinated participants in a preprint published on June 28, 2021 that for those who had 8 to 12 week (median age 39), 15 to 25 week (median age 36), and 44 to 45 week (median age 32) intervals between the first and second COVID-19-vaccine doses, the median level of IgG antibody at the day 28 after the second dose were 923, 1,860, and 3,738 tIgG EU, respectively [1]. These results indicated the longer dose intervals the higher IgG-antibody levels [1]. They identified the median 278 and 1,240 tIgG EU in the groups who had a 8 to 12 week and a 15 to 25 week intervals, respectively after 6 months of the second dose, whereas the data for the 44 to 45 week-interval group are not yet available [1]. After the second dose, the IgG binding titers to the four SARS-CoV-2 (COVID-19) variants (alpha, beta, delta, and $D6_{14}G$) tested were significant higher than before the second dose [1]. Among 75 first-two-dose-received participants with an interval of 8 to 16 weeks, the IgG antibody levels were 1,792 and 3,746 tIgG EU at the day 28 after the second dose and after the third (boosted) dose, respectively [1]. They also found that the neutralizing antibody titers after the third dose were higher than those after the second dose against alpha, beta, and delta COVID-19 variants, whereas binding antibody titers to the beta variant significantly increased after the third dose [1]. The UK government plans to roll out a third (boosted) vaccination at the beginning of the 2021 autumn for protection of the most vulnerable ahead of 2021 winter [2]. Nevertheless, the director of the Oxford Vaccine Group and the clinical trials lead for the vaccine suggested that there is no indication today for the third (boosted) vaccination [3]. Chile, a Sinovac-shot country will begin a third dose of Pfizer/BioNTech (individuals ageing under 55) and AstraZeneca (individuals with age of 55 and older, Sinovac vaccine received) vaccine on August 11, 2021 and in September 2021, respectively [4]. Recent studies revealed the loss of some efficacy of the Sinovac-vaccine shot over time [4]. Sinovac announced plans in early August 2021 to open a vaccine plant in Chile that will serve other Latin American countries [4]. Chile, Uruguay, and Israel have announced the third doses of COVID-19 vaccination as the rapid widespread of the delta variant [4]. Currently, as of August 6, 2021, Chile is reinforcing a COVID-19 vaccination campaign of about 65% of two-dose-delivered population [4]. Israel has announced its plan to start COVID-19-vaccine booster shots to the older adults in early August 2021 against COVID-19-delta variant [5]. A number of other rich countries are also considering the same [5]. Nevertheless, some global health researchers have warned that the current data do not yet demonstrate that third doses are needed to save the world population' lives except the immune-system-compromised individuals [5]. Each COVID-19-vaccine booster represents a vaccine dose that could go to low- and middle-income countries, where SARS-CoV-2 (COVID-19) variants could emerge [5]. This strategy of the wealthy countries could set back efforts to end the COVID-19 pandemic [5]. Despite the recent pledges, the COVID-19 vaccines will be reached the poorest countries in 2023 [5].

A WHO's internal analysis estimated and briefed by the WHO director-general on July 12, 2021 that the 11 wealthy countries would use up around 440 million doses of the global COVID-19-vaccine supply if they are either considering vaccine boosters or rolling out it in 2021 were to give the vaccine shots to everyone

with ages above 50 years and the estimates doubles (880 million doses) if all high-income and upper-middle-income countries were to do the same [5]. If these vaccine shots were delivered to low- and lower-middle-income countries (85% of population (around 3.5 million individuals), having received no doses), they would be more useful for the COVID-19 pandemic curving [5]. As of July 30, 2021, only 2% of population in the African continent have been vaccinated and the fatality rates are higher than the global average rate [5]. As of July 30, 2021, most high-income-country-authorized-COVID-19 vaccines can decrease more than 90% of a person's risk of hospitalization and death [5]. Many researchers do not yet know how much an mRNA-based-vaccine-extra jab on top of the standard doses would protect the average individuals [5].

In conclusion, before giving the third doses of COVID-19 vaccine, all vulnerable individuals around the world should be surely protected from COVID-19.

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