



Does Measles Vaccination Have Any Impact on Morbidity and Mortality of COVID-19?

Kızamık Aşılmasının COVID-19'un Morbidite ve Mortalitesi Üzerine Herhangi Bir Etkisi Var mı?

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Dear Editor,

According to the latest global data, SARS-CoV-2 infected approximately 40 million people, causing almost 1 million deaths.¹ Unfortunately, at least 12-18 months is required to find an effective vaccine. At this point, the question becomes whether or not interruption of live childhood vaccinations e.g. measles / MMR (measles–mumps–rubella) because of quarantine would have any effect in increasing the morbidity and mortality of the COVID-19, especially in children and adults. Paramyxoviruses are enveloped virions consisting of virus particles including measles.² Outbreaks of measles often have also drawn attention as a result of insufficient vaccination. 30% of measles cases reported in the European Union since 2017 were in Italy.³ The average measles vaccination rate in Italy has increased up to 84.5% since the 1980s. Most of the measles cases reported in 2016 were unvaccinated. One third of these cases are children aged 1-4 years. When we look at China, it is observed that the rate of measles vaccination was at 99% between 2013 and 2018. When the measles cases were analyzed, the number of cases, which was 31 per million before, decreased to 2.8 per million in 2018.⁴

Remarkably, MMR vaccination rates for 2018 were 93%, 92%, and 90% respectively, in Italy, England and France, whose a high mortality rate of COVID-19 per population.^{1,4} In Qatar, Saudi Arabia and China, where the COVID-19 mortality rate per population is relatively low, 2018 MMR vaccination rates were 99%, 98%, and 99% respectively.^{1,4} When we looked at these rates, data indicates that mortality rates due to COVID-19 disease were higher in the countries with lower MMR vaccination rates.^{1,4}

Vaccines generally increase the targeted pathogen-specific immune response. However, the MMR vaccine also enhances the immune system's ability to fight pathogens other than measles. Considering 4 clinical and 18 observational studies, it was seen that the antibody titer developed after MMR vaccination was associated with a decrease in mortality in general.⁵ In addition, in a study investigating

the relationship among the measles virus, SARS-CoV infection and measles vaccine, the recombinant measles virus vaccine has been shown to induce neutralizing antibodies at the highest titers and completely protect these immunized animals against SARS-CoV infection.⁶ Studies comparing China and Italy, which are among the countries with the highest incidence of COVID-19 disease, showed that more measles vaccination has been applied in China than Italy. Considering this, we speculate that the high incidence and mortality rate in Italy may be related to this. MMR vaccine supposedly not only strengthens general immunity by enhancing its ability to fight pathogens other than measles, but also contributes to protection by creating cross-reactivity due to its marked structure similarity of measles virus with SARS-CoV-2.⁷

As a conclusion, measles/MMR vaccinations should not be discontinued in any circumstances.

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Competing interest

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