Clinical Infectious Diseases

REPLY

Reply to Martin and Dauby

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TO THE EDITOR

We thank Martin and Dauby for their interest and careful evaluation of our work (1). We completely agree with their assessment that there is a lack of data on the efficacy of yellow fever (YF) booster vaccination. More data on secondary vaccine failures are needed, including studies that compare the risk of YF infection and clinical outcome with or without a YF booster dose. There are published data on the enhancement of the YF-specific memory immune response after revaccination (2), but also on the negative effect of pre-existing antibodies on the humoral immune response following booster vaccinations (3). Thus, further studies would certainly provide a better basis for the recommendation of booster vaccinations.

A number of factors affect the quality and the duration of the immune response after primary YF vaccination, including the age at initial vaccination, ethnicity, nutritional status, season, or the exposure to other flaviviruses (4). With regard to the interpretation of the available data,

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antibody levels are certainly a correlate of protection, but the contribution of vaccine-induced cellular immunity still requires further investigation.

Our meta-analysis provides evidence that a single dose of YF vaccine does not guarantee long-term protection against YF. Especially in children, waning of antibodies is already very pronounced during the first five years of life. It is already known from other vaccinations that infants require a higher number of vaccine doses compared to adults, which may be due to their not yet fully developed ability to raise cellular immune responses (5). Moreover, for certain sub-populations such as pregnant women or persons with immunocompromising conditions, one dose of YF vaccine may also not provide lifelong protection. For patients infected with the human immunodeficiency virus this has already been discussed in the review by Martin et al. (6).

In addition, we do not have reliable data on the surveillance of breakthrough infections for large parts of the world (e.g., for Africa with 90% of the disease burden). In Latin America, some outbreak investigations found that previously vaccinated people also contracted the disease, and in some reports the mortality rates among vaccinated persons were similar to the rates in unvaccinated persons (7,8).

Given the limitations mentioned above, the German Standing Committee on Vaccination (STIKO) has decided to recommend a booster dose for travelers (9). Due to the high case fatality rate, this is a precautionary measure, until more evidence or another vaccine is available. We think that as long as the data still shows the weaknesses mentioned above, it is reasonable to consider a booster vaccination before travelling to an endemic area. Similar to Germany, several other countries have already decided in favor of a single YF booster vaccination.

NOTES

Conflicts of Interest None to declare

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