Analyzing the Development of Vaccines for Flavivirus-Endemic Scenarios: The Case of Dengue and Dengue Vaccine in Peru

TO THE EDITOR—We read with great interest the phase 1 clinical trial published by Durbin and colleagues in the Journal of Infectious Diseases [1] in which a new tetravalent vaccine (TV003) proved to be safe with a balanced immunogenic response for the 4 serotypes of Dengue virus (DENV) in a North American adult population seronegative for DENV, yellow fever (YF), and other flaviviruses, including West Nile virus. These positive results and the promising single-dose regimen are exciting. We look forward to seeing the results of future studies with this candidate vaccine and its potential benefits to endemic areas like Peru [2,3].

DENV and YF currently both circulate in our country as in many other Latin American countries [4,5]. Previous evidence suggests that preexisting immunity against YF influences the immune response to DENV [6]. The YF vaccine is a part of the routine vaccination schedule in endemic countries [5]. Future trials should include subjects who live in areas where both infections are present. Additionally, children are the most affected population [7] in hyperendemic DENV and YF countries. Therefore, it is important to include them in future studies of this promising new vaccine [1].

Lanata and colleagues [8] conducted a recent study in northern Peru, an area highly affected by dengue, and reported a safety profile and immunogenicity for a live-attenuated, tetravalent dengue vaccine (CYD-TDV) in children aged 2–11 who were previously exposed to the YF vaccine. After the third CD-TDV dose, they found a seropositivity rate of 94.1% against 3 or more serotypes and 98.4% against 3 or more serotypes of dengue [8]. Although Lanata’s and Durbin’s studies are not comparable in terms of target population and study objectives (since phase 1 trials aim to prove safety among healthy individuals, and phase 2 trials aim to fine-tune the testing protocol), the Lanata et al [8] study is more applicable to dengue endemic countries because of the coexistence of both flaviviruses and the inclusion of children, a high-risk population. We believe that future phases of the Durbin et al trial [1], and other studies regarding new dengue vaccines, should be oriented in this direction. Therefore, for future studies of this new and promising vaccine [1], we recommend gradually including more subjects that better represent the population that will most likely receive these vaccines, as other dengue vaccine studies have done previously [9,10].

Note

Potential conflicts of interest. All authors: No reported conflicts.

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