Safety and Immunogenicity of a Tetravalent Live-Attenuated Dengue Vaccine in Flavivirus-Naive Infants


Abstract

A Phase I/II observer-blind, randomized, controlled trial evaluated the safety and immunogenicity of a dengue virus (DENV) vaccine candidate in healthy Thai infants (aged 12–15 months) without measurable pre-vaccination neutralizing antibodies to DENV and Japanese encephalitis virus. Fifty-one
Subjects received two doses of either DENV (N = 34; four received 1/10th dose) or control vaccine (N = 17; dose 1, live varicella; dose 2, Haemophilus influenzae type b). After each vaccine dose, adverse events (AEs) were solicited for 21 days, and non-serious AEs were solicited for 30 days; serious AEs (SAEs) were recorded throughout the study. Laboratory safety assessments were performed at 10 and 30 days; neutralizing antibodies were measured at 30 days. The DENV vaccine was well-tolerated without any related SAEs. After the second dose, 85.7% of full-dose DENV vaccinees developed at least trivalent and 53.6% developed tetravalent neutralizing antibodies ≥ 1:10 to DENV (control group = 0%). This vaccine candidate, therefore, warrants continued development in this age group (NCT00322049; clinicaltrials.gov).

Disclaimer: Some of the authors are employed by GlaxoSmithKline and hold stock in the company. J.R.P., K.H.E. and B.L.I. are named as inventors on the dengue live attenuated vaccine patents. These statements are made in the interest of full disclosure and not because the authors believe that there is a conflict of interest. The opinions or assertions contained herein are the private views of the authors and are not to be construed as reflecting the official views of the US Department of Defense or the Royal Thai Army. Priya Pavithran, Dr. Roselynn Tien, and Ms. Julia Donnelly (GlaxoSmithKline) assisted in writing this report. Varilix and Hiberix are trademarks of the GlaxoSmithKline group of companies.

Footnotes

Financial support: This work was funded by US Army Medical Research and Materiel Command (Fort Detrick, MD) and GlaxoSmithKline (Rixensart, Belgium).

Received September 8, 2010.
Accepted May 2, 2011.

©The American Society of Tropical Medicine and Hygiene