Efficacy and safety of Butantan-DV live, attenuated tetravalent dengue vaccine from a phase 3 clinical trial in children, adolescents, and adults

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Background: Safety and efficacy of Butantan-DV, a live, attenuated tetravalent dengue vaccine was assessed in a phase 3 trial after ≥2 years of follow-up.

Methods: Participants, stratified by age (2–6, 7–17, and 18–59 years), were randomized (2:1) to a single dose of Butantan-DV or placebo in an ongoing, double-blind, phase 3 trial in Brazil, with projected 5-year follow-up (NCT02406729). Safety was evaluated by monitoring vaccine-related adverse events (AEs). Vaccine efficacy (VE) against symptomatic virologically confirmed dengue (VCD) by any DENV serotype was determined by RT-PCR after day 28 postvaccination. Additionally, VE by baseline serostatus, serotype, or age, and against severe dengue were assessed.

Results: Between 2016–2019, 16,235 participants received Butantan-DV (10,259) or placebo (5976); 46.5% were dengue-naive at baseline. Within 21 days postvaccination, 58.3% of Butantan-DV recipients versus 45.6% of placebo recipients experienced solicited systemic vaccine-related AEs. After 2 years of follow-up, VE (95% CI) was 79.6% (70.0%–86.3%) overall; 80.1% (66.0%–88.4%), 77.8% (55.6%–89.6%), and 90.0% (68.2%–97.5%) for ages 2–6, 7–17, and 18–59, respectively. Overall, two-year serotype-specific VE (95% CI) was 89.5% (78.7%–95.0%) against DENV1 and 69.6% (50.8%–81.5%) against DENV2. DENV3 and DENV4 were absent during follow-up. Through a follow-up period varying from 2–5 years for each participant, VE (95% CI) against severe dengue was 88.2% (50.8%–98.2%).

Conclusion: Butantan-DV was generally well-tolerated and efficacious against DENV1 and DENV2 symptomatic VCD, regardless of dengue baseline serostatus or age.