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A prospective cohort study to assess seroprevalence, incidence, knowledge, attitudes and practices, willingness to pay for vaccine and related risk factors in dengue in a high incidence setting

Ruth Aralí Martínez-Vega[1,2], Alfonso J. Rodriguez-Morales[1,3], Yalil Tomás Bracho-Churio[1], Mirley Enith Castro-Salas[1], Fredy Galvis-Ovallos[1], Ronald Giovanny Díaz-Quijano[1], María Lucrecia Luna-González[1], Jaime E. Castellanos[4], José Ramos-Castañeda[5] and Fredi Alexander Diaz-Quijano[6*]

Abstract

Background: Dengue is one of the most important vector-borne diseases in the world, causing significant morbidity and economic impact. In Colombia, dengue is a major public health problem. Departments of La Guajira, Cesar and Magdalena are dengue endemic areas. The objective of this research is to determine the seroprevalence and the incidence of dengue virus infection in the participating municipalities from these Departments, and also establish the association between individual and housing factors and vector indices with seroprevalence and incidence. We will also assess knowledge, attitudes and practices, and willingness-to-pay for dengue vaccine.

Methods: A cohort study will be assembled with a clustered multistage sampling in 11 endemic municipalities. Approximately 1000 homes will be visited to enroll people older than one year who living in these areas, who will be followed for 1 year. Dengue virus infections will be evaluated using IgG indirect ELISA and IgM and IgG capture ELISA. Additionally, vector indices will be measured, and adult mosquitoes will be captured with aspirators. Ovitraps will be used for continuous estimation of vector density.

Discussion: This research will generate necessary knowledge to design and implement strategies with a multidimensional approach that reduce dengue morbidity and mortality in La Guajira and other departments from Colombian Caribbean.

Keywords: Dengue, Seroprevalence, Incidence, Knowledge, Vaccines, Risk factors, Colombia

Background

Although arboviral diseases, such as Chikungunya and Zika [1, 2], have recently emerged in the Americas, dengue is globally the most important of the group of three viruses, particularly related to both incidence and the burden of disease. An estimated average of 9221 dengue deaths occurred per year between 1990 and 2013, increasing from a nadir of 8277 (95% uncertainty estimate 5353–10,649) in 1992, to a peak of 11,302 (6790-13,722) in 2010 [3]. This yielded a total of 576,900 (330,000–701,200) years of life lost to premature mortality attributable to dengue in 2013 [3]. The incidence of dengue increased considerably between 1990 and 2013, with the number of cases more than doubling every decade, from 8.3 million (3.3 million–17.2 million) apparent cases in 1990, to 58.4 million (23.6 million–121.9 million) apparent cases in 2013 [3]. When disability from moderate and severe acute dengue, and post-dengue chronic fatigue are taken into account, 566,000 (186,000–1.415,000) years lived with disability were attributable to

* Correspondence: frediazq@msn.com
[6]Department of Epidemiology, Universidade de São Paulo, São Paulo, São Paulo, Brazil
Full list of author information is available at the end of the article