

Influence of Climatic Variability on Malaria Cases Income at Hospital Santos Anibal Dominicci, Carúpano, Sucre, Venezuela.

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Abstract

Introduction: Malaria is a complex tropical infectious disease, conditioned to determined geographical areas, in relation with a wide group of biological, social and ecological variables, that influence sinergically and significantly its dynamic. Recently, climatic variability and its relation with this ecological system (malaria) has been considered as an important component of ecoepidemiological research. For these reasons, as part of research on studies about climate and health, in this report we describe the influence of climatic variability on malaria cases income at Hospital Santos Anibal Dominicci, Carúpano (HSAD), Sucre state, between January 2000 and December 2001.

Methods: We made correlations between hospital income numbers due to malaria caused by different species of *Plasmodium*, at HSAD for the study period, and climatic variability according to data from the National Oceanographic and Atmospheric Administration (NOAA) and periodical classification of climatic phenomena (El Niño/La Niña).

Resultados: For the studied period, 123 patients were hospitalized due to malaria (according to clinical criteria for hospitalization) (94.31% due to *P. vivax* and 5.69% due to *P. falciparum*). Sexo distribution was: 60.16% females and 39.02% males. Mean patients age was: 13 y-old (63.41% <12 y-old). When we made correlations between number of hospitalizations and climatic variability we found associations, some of these, statistically significant ($r^2 > 0.5$; $p < 0.05$), between decrease on the number of malaria hospitalizations and phenomena with trends of warming, mainly (from C+ to W+) (1st Semester 2000 [$r^2 = 0.83$], 1^{er} Semestre 2001 [$r^2 = 0.62$]).

Discussion: In previous studies, we reported how climatic changes have certainly an impact on malaria epidemiology in northeastern Venezuela, phenomena related to ecology and biology of the vector (in this case *Anopheles aquasalis*). The vector is benefited with these changes. This report indicated that this impact could be also reflected in the number of hospitalizations due to malaria in the studied period, being higher during La Niña events (rain-Cold) and lower in presence of El Niño (dry-Warm); all this forms part of a complex ecoepidemiological study that should be done in a multifactorial tropical disease, as malaria is, and letting generate in the future models for epidemiological management, considering the climatic variability as one of the important elements of monitoring and forecasting.

Key words: Malaria, Climatic variability, ENSO, Hospitalizations.

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