ASSOCIATION BETWEEN CLIMATIC VARIABLES AND DENGUE IN THE REGION OLMECA, MEXICO

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Background and Aims: Dengue is the most serious and prevalent arboviral disease in the world today. Roughly three billion people are at risk of contracting dengue virus. From 1995 to 2005, Veracruz remained one of the states with a high number of reported cases of dengue fever. For 2005 the national rate in Mexico of classic dengue morbidity was 16.3 per 100,000, however in the state of Veracruz this was 53.5 per 100,000 inhabitants. The main aim of this study was to assess linkages between the climatological variables and longer-term ENSO related weather forcing on the week-to -week changes in dengue incidence in 10 municipalities of the region Olmeca, over a recent decade of dengue observations.
Methods: A study ecological time series analysis was made using the weekly dengue cases registered in the municipalities of the Region Olmeca of Veracruz during the period 1995-2005 and daily weather data from the same period. Information on the index of social backwardness for 2005 was obtained from the National Council of Evaluation of Social Development Policy .We used a negative binomial model to assess the relation between climatic variables and dengue and including sine and cosine functions for seasonal adjustment. We evaluated the goodness of fit.
Results: In Mecayapan there is a statistically significant relationship between minimum temperature and incidence rates given at one week time lag. In Acayucan there is a statistically significant relationship between SST and incidence rates given at 5 months time lag. The results indicate that it takes aprox. 5 months for environmental conditions, as measured by SST and adjusted by precipitation and minimum temperature, to affect dengue incidence.
Conclusions: We need to incorporate to the model: social, demographic, geographical and physical factors, which determine the vulnerability into the each municipality.