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Deciphering the participation of *Anopheline* species in the transmission of *Plasmodium vivax* in Mexico

Statement of the Problem: Malaria is a public health problem in tropical and subtropical regions of the world. In most Mexican territory, *P. vivax* transmission has been historical and remains in some malarious foci along the pacific coast and in the southern region, while *P. falciparum* was eliminated about eight years ago. In order to contribute to malaria control and elimination in the region, in southern Mexico we carried out several studies to discover vector and parasite factors involve in the *P. vivax* transmission. The purpose of this study was to investigate *P. vivax* genetic variation, and vector susceptibility, to identify vector-parasite factors favoring *P. vivax* transmission.

Methodology & Theoretical Orientation: The most abundant Anopheline vector species of different sites from Mexico were inbred under insectary conditions. *P. vivax* infected blood obtained from patients living in southern Mexico was used to test the mosquito susceptibility. The number of mosquitoes infected with oocyst and the number of oocysts per mosquito were recorded per colony and per mosquito species. Parasite genotype was determined and its association to vector susceptibility was analyzed.

Findings: The data exposed different *P. vivax* genotypes in southern Mexico that produced different degree of oocyst infection in *An. albimanus* and/or *An. pseudopunctipennis*, and An. punctipennis. Moreover, there were different colonies of two Anopheline species from distant geographic sites that showed similar susceptibility to southern parasites.

Conclusion & Significance: The finding suggests that *P. vivax* in southern Mexico comprises strains with different compatibility to the local Anopheline species. These mosquito vectors are distributed across the country and likely capable to sustain malaria transmission. On the other hand, the genetic pool of malaria parasites seem reduced to few genotypes, those more adapted to local vector species.

Speaker Biography

Lilia Gonzalez-Ceron, PhD. Parasitologist. Principal researcher of the Regional Centre of Research in Public Health, National Institute of Public Health, Chiapas, Mexico. She has been working with *P. vivax* malaria since 1986s, and has been involved in epidemiological studies, vector-parasite interactions, diagnosis and treatment. Also, she is interested in the evolutionary genetics of *P. vivax* in Mexico and its transmission dynamics.

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