16th International Congress on Infectious Diseases (ICID) Abstracts

Type: Oral Presentation

Final Abstract Number: Pre.001

Session: Pre-Congress Symposium: Emerging African Investigators Symposium

Date: Wednesday, April 2, 2014

Time: 13:00-17:00

Room: Room Roof Terrace

What are the risks of emergence of chikungunya outbreak in Central African Republic?

B. Kamgang*, C. Ngoagouni, V. Tricou, E. Nakouné, M. Kazanji

Institut Pasteur de Bangui, Bangui, Central African Republic

Background: Chikungunya virus, which previously caused only sporadic outbreaks in sub-Saharan Africa, has recently emerged in several urban epidemic foci in Central Africa. This emergence of chikungunya in urban area coincides with introduction of Aedes albopictus in this area. Aedes albopictus originated in Asia was first reported in central Africa in 2000, in Cameroon, with the indigenous mosquito species Aedes aegypti. Today, this invasive species is present in almost all countries of the region, including the Central African Republic (CAR), where it was first recorded in 2009.

Methods & Materials: To determine the consequences of this invasion of Aedes albopictus for epidemiological transmission of chikungunya, we conducted a comparative study in the early and the late wet season in the capital, Bangui, and in the other main cities of the country to document infestation by the two species and their ecological preferences. In addition, we explored the geographical origin of populations of Aedes albopictus with two mitochondrial DNA genes, COI and ND5. We also assessed the current circulation of chikungunya virus in CAR by detection anti-CHIK IgM antibodies in different population living in CAR.

Results: Analysis revealed that Aedes aegypti predominates early and Aedes albopictus late in the wet season. Aedes albopictus was the most prevalent species in almost all the sites investigated, except Bouar, where only Aedes aegypti was found, suggesting that Aedes albopictus tends to supplant Aedes aegypti in sympatric areas. Mitochondrial DNA analysis revealed broad low genetic diversity, confirming recent introduction of Aedes albopictus. Phylogeographical analysis with MtDNA COI gene suggested that Aedes albopictus in CAR came from multiple invasions and from multiple population sources. Serological analysis revealed a silent circulation of chikungunya virus, with anti-CHIK IgM antibodies detected in 25.2% from 468 tested samples. Furthermore anti-CHIK IgG antibodies were detected at later stage in 17.2% of the 58 IgM tested samples.

Conclusion: The predominance of Aedes albopictus over the indigenous species associated with the presence of chikungunya viruses could lead to increased risks for emergence chikungunya outbreaks in urban area in CAR. These data may have important implications for chikungunya control strategies in central Africa.

http://dx.doi.org/10.1016/j.ijid.2014.03.408

Type: Oral Presentation

Final Abstract Number: Pre.002

Session: Pre-Congress Symposium: Emerging African Investigators Symposium

Date: Wednesday, April 2, 2014

Time: 13:00-17:00

Room: Room Roof Terrace

First evidence of circulation of chikungunya virus in Mozambique

E.S. Gudo1,*, S. Vene2, I. Manhica3, N.D. Deus1, A. Mandlaze1, A. Muianga1, G. Pinto4, K.I. Falk5

1 National Institute of Health, Maputo, Mozambique
2 The Public Health Agency of Sweden, Solna, Sweden
3 National Directorate for Public Health, Ministry of Health, Maputo, Mozambique
4 National Institute of Health, Ministry of Health, Maputo, Mozambique
5 MTC, Karolinska Institutet, Stockholm, Solna, Sweden

Background: Chikungunya virus (CHIKV) is an emerging arbovirus that caused a large outbreak in the south western Indian Ocean Islands and Mozambique Channel in 2005-2007 and since then is spreading, causing several outbreaks in areas not previously affected. Although several of the affected countries are in the close proximity of Mozambique, no previous study has yet been conducted to investigate the circulation of this virus in Mozambique.