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Rethinking arboviral risk in malaria-endemic Africa

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We conducted a prospective multicentre seroepidemiological study including 2,283 febrile patients from Côte d'Ivoire and Gabon between 2022 and 2024. IgG antibodies against dengue virus (DENV), Zika virus, West Nile virus, and Rift Valley fever virus were assessed using a novel high-specificity ELISA platform designed to reduce flaviviral cross-reactivity. Plasmodium infection was determined by routine diagnostics, and questionnaire-derived Exposure and Socioeconomic Indices were used to assess environmental and structural risk factors. Our findings redefine current assumptions of arboviral circulation in both regions. In Côte d'Ivoire, we provide the first broad assessment of arboviral exposure beyond dengue outbreak surveillance, while in Gabon improved serological specificity revealed a less heterogeneous arboviral landscape than previously suggested. Despite different ecological and epidemiological backgrounds, both countries showed similar patterns dominated by DENV exposure, with limited circulation of other arboviruses. Importantly, DENV IgG seropositivity and Plasmodium infection were strongly linked to cumulative exposure and socioeconomic conditions, particularly in children, identifying early life as a critical window of combined vector exposure. These results highlight the need for integrated One Health surveillance approaches combining human diagnostics, vector ecology, and environmental risk assessment to better anticipate emerging vector-borne disease threats.

Keywords

seroepidemiology, arbovirus, malaria, Gabon, Côte d'Ivoire

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Professional Status of the Speaker

Postdoc

Junior Scientist Status

No, I am not a Junior Scientist.

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