Epidemiology

PO - (8581) - ZOONOTIC VIRAL ANTIGENS SURVEILLANCE IN HEALTHY POPULATIONS LIVING IN LAMBARÉNÉ, GABON

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Background

Worldwide, viral zoonotic infections such as filoviruses, flaviviruses, nairoviruses and arenaviruses cause self-limiting to severe diseases. They are endemic in sub-Saharan Africa, causing sporadic outbreaks, warranting the development of sustainable surveillance systems. In Gabon, Ebola outbreaks occurred from 1994 to 2002 causing 214 human cases and 150 deaths, while Dengue, Zika and Chikungunya virus outbreaks occurred between 2007 and 2010. Beyond these outbreaks, little is known about the epidemiology. Recently, in collaboration with the Japanese Government, the Research and Health Ministries of Gabon supported the implementation of a biosecurity level-3 (BSL-3) laboratory in Lambaréné (CERMEL) as a zoonotic disease surveillance unit. Start-off involved antigen detection and characterization of circulating antibodies to targeted viral antigens in healthy populations. This study reports data from healthy participants (18-50 years) in a Phase 1 rVSV-ZEBOV-GP Ebola vaccine trial.

Methods

Hundred-six baseline samples were screened for Ebola, Dengue 1-4 and Chikungunya viral RNA by RT-PCR on serum. IgG ELISA on plasma was used to identify antibodies against: Zaire-Ebola-(EBOV-GP & EBOV-VP40), Marburg-(MARV-GP & MARV-VP40), Crimean Congo Haemorrhagic Fever-(CCHFV-GP), Lasa-(LASV-GPC & LASV-NP), Yellow Fever-(YFV-NS1), West-Nile-(WNV-NS1), Zika virus-(ZIKV-NS1), Chikungunya-(CHIKV-VLP) and Dengue-(DENV1-NS1,DENV2-NS1,DENV3-NS1,DENV4-NS1) virus antigens.

Results

No viral RNA was isolated by RT-PCR in 106 samples. About 9%(10/106), 3%(3/106), 6%(6/106), 24%(25/106), 51%(54/106), 38%(40/106) and 36%(38/106) participants were seropositive for antibodies specific to EBOV-GP, MARV-GP, CCHFV-GP, YFV-NS1, WNV-NS1, ZIKV-NS1 and CHIKV-VLP respectively. Twelve percent (13/106) of participants possessed antibodies specific to Zika, Chikungunya and Dengue 1-4 antigens. Six percent (6/106) of participants were seropositive for EBOV-GP and CCHFV-GP.

Conclusion

We found antibodies to viral zoonotic infections among our healthy volunteers. Further assays, including neutralization assays are being performed to ascertain the specificity of the antibodies. These findings, once confirmed, will provide insights into disease surveillance, vaccine trial designs, evaluation of post-vaccine induced responses, variability in adverse events and overall disease transmission patterns.