Surveillance on Arboviral Infections in Georgia by using One Health Approach

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Objective

Identify cases of West Nile virus in Black Sea region of Georgia through active surveillance.

Introduction

Arbovirus infections are causing enormous global burden, while their geographic distribution expands and affects new regions and areas. West Nile virus (WNV), one of the most important pathogens among arboviruses, was historically associated with causing mild febrile illness, however, after the outbreak occurred in the North America, which caused more severe illness, it has received wider recognition. It is believed that the disease can reemerge after a hiatus of several years, and affect new territories, which has happened in 2018 in Greece, with 31 dead among 271 infections by the end of September. In Georgia, there is a lack of clinical suspicion on WNV because of the low awareness among medical society, and the existent passive surveillance system seems to be improved.

Methods

In order to assess the situation in Georgia, medical histories and Electronic Integrated Disease Surveillance System (EIDSS) database was studied, and active surveillance has been conducted with the following case selection criteria: residence - Black Sea region; diagnosis - fever of unknown origin (FUO).

Enzyme-linked immunosorbent assay (ELISA) was performed. Mosquitoes were obtained by using light traps and aspirators, and are now being studied. Medical personnel was trained on using WNV case definition.

Results

Three laboratory positive cases were identified from 36 suspected cases. Two of them were males (66%). Age distribution – 28-35 y.o. All three cases resided in the city of Batumi in the Adjara region. A total of 572 mosquitoes were obtained. According to preliminary analysis, the species include: *Culex pipiens, Aedes albopictus, A. aegypti, A. caspius, A. geniculatus, Anopheles claviger*.

Conclusions

The preliminary data suggests that the burden of WNV in Georgia should be studied with more in-depth approaches and with just passive surveillance activities. It is very important to establish coordinated rapid efforts for disease identification by physicians and veterinarians; and to provide better harmonization of diagnostic tools and integrated national surveillance system. Disease transmission risk needs to be assessed for adequate planning of preventive measures. At this stage, no animals were studied, however, in order to fulfill the One Health approach, we are planning to study horses in the near future.

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