Molecular Characterization of circulating Rabies Virus and Knowledge Attitude Practice in Uganda

Introduction

Rabies is a viral disease that affects mammals and remains a public health threat in Uganda. The aim of study was to explore knowledge, Attitude, Practice of rabies and molecular epidemiology of rabies virus in Uganda.

Methodology

Knowledge, Attitude and Practices (KAP) survey about rabies, data was collected purposively based on animal biting history from veterinary departments, Medical units and selected households. Eighty-four (84) households in Ntoroko and Moyo districts. Fisher's Exact test or the Chi-square X^2 test were used to analyse data. Thirty-five (35) brain tissues from dogs, cattle, goats, foxes and jackals, in Jinja, Kabale, Kabarole, Kabongo, Jinja, Moyo, Ntoroko and Namayingo were tested. Fluorescent antibody test was used to detect rabies virus, RNA was extracted using Qiagen kit, and one-step RT-PCR was performed PCR products were sequenced by automated Sanger sequencing method.

Results

Twenty-seven (27) tested positive for rabies antigen using Fluorescent antibody test, and PCR. Dog biting episodes in humans were 75.00% (Moyo), Ntoroko 62.5%. In Moyo district, 18.18% of the persons bitten by dogs washed wounds and 17.50% in Ntoroko prior to medical treatment.

Identified sequences (500nt) were closely with 97% to isolates from Tanzania, Rwanda, Burundi, Nigeria, Central African Republic and Sudan. Phylogenetic analysis revealed that both Ntoroko and Moyo districts had mixed lineages of "Africa 1A" and "Africa 1B" Rabies virus clades. Jinja, Kabongo, Kabarole, Namayingo and Kabale isolates belong to lineage Africa 1B" Rabies virus clade.

Conclusion

Africa 1A and Africa 1B clades circulating in dogs co-exist in Moyo and Ntoroko districts. A single clade 1B was detected in Jinja, Namayingo, Kabongo, Kabale and Kabarole. The risk of rabies is high in Moyo and Ntoroko that borders the Republic of RSS and DRC due to reported dog bites from stray dogs and cross boarder movements of people with dogs into Uganda.

Key terms: Rabies, Molecular Characterization , KAP, Rabies virus