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Outbreak investigation and molecular characterization of African horse sickness virus circulating in some selected areas of Ethiopia

Samuel Derso Tezera Ehopia

his study was conducted June 2011 to April 2012 in central, northern, southern and south western parts of Ethiopia. L The objectives of the study were to investigate outbreaks of African horse sickness, assess associated risk factors and characterize the circulating serotypes of African horse sickness virus by using quantitative real-time RT-PCR. Whole blood Samples were collected in EDTA for virus isolation, identification and serotyping from diseased horses and mules showing typical signs of the AHS. Virus isolation on Vero cell and identification of AHSV genomes using conventional RT-PCR were conducted at NVI, Debre Zeit, Ethiopia. Samples were also sent for further serotyping were done at Non-vesicular Laboratories of IAH, Pirbright, UK. During the outbreaks, 116 equines (86 horses and 30 mules) were affected from which 44 deaths (24 horses and 20 mules) were recorded. During the active outbreak investigation, all of the four forms of AHS were observed with respective proportion of 52.8%, 8.4%, 6.9% and 31.9% cardiac, pulmonary, mixed and mild forms of AHS Seventy two horses were diagnosed clinically as having AHS, but laboratory investigations proved that only twenty-one animals had actually been infected. Statistically significant differences was observed in the occurrence of AHS between stabling during the night and vaccination (P<0.05), however, the variation between the age groups and sex were not statistically significant (P>0.05). From the 72 samples collected from active cases suspected of AHS and processed for serotyping, only 16 of them were able to be serotyped and all of them were found to be African horse sickness virus-9. Serotype 9 of AHSV is predominant virus circulating in different parts of Ethiopia. In some vaccinated equines against serotype 9 of AHSV were affected by the disease. So further study on molecular characterization of the field isolate and their relationship to vaccinal strain is recommended for development of bi or polyvalent vaccines for all AHSVs.

Key words: African horse sickness virus, equine, Ethiopia, outbreak, risk factor, RT-PCR, serotype.

samuelderso@gmail.com