Serotype Specificity of Antibodies against Foot-and-Mouth Disease Virus in Cattle in Selected Districts in Uganda

Frank N. Mwiine (Ph.D)

Abstract

Uganda had an unusually large number of foot-and-mouth disease (FMD) outbreaks in 2006, and all clinical reports were in cattle. A serological investigation was carried out to confirm circulating antibodies against foot-and-mouth disease virus (FMDV) by ELISA for antibodies against non-structural proteins and structural proteins. Three hundred and forty-nine cattle sera were collected from seven districts in Uganda, and 65% of these were found positive for antibodies against the non-structural proteins of FMDV. A subset of these samples were analysed for serotype specificity of the identified antibodies. High prevalences of antibodies against non-structural proteins and structural proteins of FMDV serotype O were demonstrated in herds with typical visible clinical signs of FMD, while prevalences were low in herds without clinical signs of FMD. Antibody titres were higher against serotype O than against serotypes SAT 1, SAT 2 and SAT 3 in the sera investigated for serotype-specific antibodies. Only FMDV serotype O virus was isolated from one probang sample. This study shows that the majority of the FMD outbreaks in 2006 in the region studied were caused by FMDV serotype O; however, there was also evidence of antibodies to both SAT 1 and SAT 3 in one outbreak in a herd inside Queen Elizabeth national park area.