Rift Valley fever antibody in human sera collected after an outbreak in domestic animals in Kenya

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Rift Valley fever (RVF) virus is a member of the family Bunyaviridae, genus Phlebovirus (Bishop et al., 1980). As first described by Daubney et al. (1931), the disease was a highly fatal epizootic of sheep at a farm north of Lake Naivasha, Kenya. Since that time, periodic epizootics of RVF have been recorded in Kenya. They principally occurred in domestic sheep and cattle populations, particularly those imported into the country. Human cases have occurred in laboratory workers and people associated with the affected animals, but are comparatively rare (Davies, 1935; Davies et al., 1985). In June 1989 an outbreak of RVF occurred in domestic cattle and sheep on farms bordering Lake Naivasha, less than 20 km from the site of the 1931 outbreak (Logan et al., 1991).

The RVF outbreak was recognized when virus was isolated from a bovine foetus brought to the Veterinary Research Laboratory at Kabete on 15 June 1989 (Davies et al., 1991). Further investigations were made at the farm where the foetus was aborted and at 2 adjacent farms. Several RVF virus isolates were made from sheep and cattle during the outbreak and a high percentage of rumenants were RVF antibody-positive in a virus neutralization test (Davies et al., 1991). RVF virus was also isolated from 5 pools of Culex sp. mosquitoes. Several RVF viral isolates were made from sheep and cattle during the outbreak and a high percentage of rumenants were RVF antibody-positive in a virus neutralization test (Davies et al., 1991). RVF virus was also isolated from 5 pools of Culex sp. mosquitoes. Several RVF viral isolates were made from sheep and cattle during the outbreak and a high percentage of rumenants were RVF antibody-positive in a virus neutralization test (Davies et al., 1991). RVF virus was also isolated from 5 pools of Culex sp. mosquitoes. Several RVF viral isolates were made from sheep and cattle during the outbreak and a high percentage of rumenants were RVF antibody-positive in a virus neutralization test (Davies et al., 1991).

This report describes the prevalence of RVF virus-specific immunoglobulin (Ig) G and IgM antibody in herdsmen working on the 3 affected farms. Blood samples were taken by finger stick on to filter paper (WHATMAN No. 3) to fill 2 ringed areas Daubney, R., Hudson, J. R. & Gamham, P. C. (1931). Enzyme-linked immunosorbent assay (KSIAZEK, T. M. Logan, T. M., Binepal, Y. S. & Roberts, C. R. (1991). Isolation of Rift Valley fever virus from mosquitoes (Diptera: Culicidae) collected during an epizootic, only 2 were positive to RVF antigen in an indirect fluorescent antibody test (F. G. Davies, unpublished data). Other cases of RVF have been reported in East Africa (METSELAAR et al., 1974; SMITHBURN et al., 1949; DAUBNEY et al., 1931) and RVF antibody has been shown to occur at a low level in humans (JOHNSON et al., 1983). RVF virus isolates from East Africa are considered to be as pathogenic for humans as, for example, the Egyptian strain ZH501 (BATTLES & DALRYMPLE, 1988).

There has been extensive human involvement, with mortality, in RVF epizootics in other African countries, most recently Madagascar (MORVAN et al., 1991), Mauritania (JOUAN et al., 1989), Egypt (MEEGAN, 1979) and South Africa (VAN VELDEN et al., 1977). It is possible that the low human to animal contact ratio throughout the enzootic areas may be significant. Often 1 or 2 herdsmen will manage between 400 and 1000 animals in a farm. In Egypt and Mauritania, family groups generally have far fewer cattle, sheep or goats and live much more closely associated with them. Vector biology may be a further and important determinant.

The samples were ethically obtained from all subjects after informed oral consent to the purpose and procedure of the serology; the data were recorded anonymously using a number system. The results have been transmitted to the managers of the farms visited during this study.

References


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