

Persistence duration of immunoglobulin G antibodies to Rift Valley fever virus in sheep and goats after vaccination

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Abstract

Duration of immunoglobulin G (IgG) antibodies to Rift Valley fever (RVF) virus after vaccination with the live attenuated RVF Smithburn strain vaccine was investigated in two groups (Group A and B) of sheep and goats. Also, two batches (Batch I and II) of the same vaccine were used to compare between them. The IgG-sandwich enzyme-linked immunosorbent assay (ELISA) was used to detect IgG antibodies in serum samples of vaccinated animals. For Batch I, the percentage of IgG positive animals significantly declined from 95% to 66.7% after the elapse of one year, and to 50% after the elapse of four years and eight months. It would decline to zero after six years and eleven months. For Batch II, the decline of the percentage of IgG positive animals from 87% to 77.3% after the elapse of one year and eight months was not significant.

It could be concluded that the level of herd immunity induced by the live attenuated RVF Smithburn strain vaccine significantly declines with the elapse of years. Also, the decline of the level of herd immunity varies between different batches of the same vaccine. Hence, efficient and cost-effective vaccination strategies for control of RVF have been discussed.

Keywords

Rift Valley fever- Vaccination- Immunoglobulin G- Herd immunity- Control strategies.