Abstract

The bovine viral diarrhea virus (BVDV) infection control should be based on elimination of persistently infected animals and on immunization through vaccination, to prevent fetal infection. However, the efficacy of inactivated BVDV vaccines is variable due to its low immunogenicity. This study evaluated the humoral immune response against homologous and heterologous strains of 7 inactivated BVDV vaccines, in bovines and two experimental models (ovine and guinea pig) which might be used to test candidate vaccines. Vaccines formulated with BVDV Singer, Oregon, NADL, and multivalent, induced seroconversion in the three animal models studied, reaching antibody titres higher than 2. Vaccine containing 125C - genotype 2- only induced a low antibody response in ovine, while VS-115 NCP vaccine was not immunogenic. Furthermore, bovine sera at 60 dpv presented homologous as well as heterologous antibody response, indicating a high degree of cross-reactivity among the strains studied. However, when bovine sera were tested against the Argentine field strain 00-693, they showed the lowest levels of cross-reactivity, suggesting the need of continued surveillance to identify and characterize emerging field BVDV strains. Finally, optimal correlations between bovine-ovine and bovine-guinea pig models were observed, indicating that two alternative species could replace bovines when testing the immunogenicity of BVDV candidate vaccines.

Keywords

Bovine viral diarrhea virus, BVDV, Argentine field strain, Inactivated virus vaccine