

Title: EVALUATION OF IMMUNE RESPONSE AND VIRAL SHEDDING OF INFECTED CATTLE BY *BOVINE HERPESVIRUS 1*

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Abstract:

Bovine herpesvirus 1 (BoHV-1) is the causative agent of Infectious Bovine Rhinotracheitis which causes economic losses to livestock. After the productive infection, BoHV-1 comes into a state of latent infection, having their gene expression limited to transcripts related to the maintenance of latency. In situations where the corticosteroid levels are elevated in the animal organism, for example at the administration of dexamethasone, occurs the stimulation and/or repression of some cellular factors which contribute to reactivation of viral lytic cycle. The aim of this study was to evaluate the infection caused by BoHV-1 in bovine model. For that purpose, we carried out a viral challenge in 20 six months old males. The animals were divided into 4 experimental groups. The group 1 received suspension of viral inoculum and 45 days after, they received an administration of dexamethasone by intramuscular way. The group 2 received only the administration of dexamethasone. The group 3 was challenged with BoHV-1 by intranasal way without the administration of dexamethasone and the group 4 received cell suspension and was not administered dexamethasone. Blood samples and nasal secretions were collected during 51 days to evaluate the humoral response and virus excretion by serum neutralization assays and isolation/viral titer, respectively. The animals showed enhanced nasal mucous secretion, difficulty breathing, purulent nasal plates, intranasal vesicles, sialorrhoea and rales on pulmonary auscultation. The group 1 had mild increase of nasal mucous secretion, sialorrhoea and fever. Viral shedding was observed in nasal secretions samples in group 3 from day 2 until day 8 with titers ranging from 7.6 to 19.8. In group 1, the titers ranging from 10.3 to 23.4 in days 2 and 6, having new isolation on days 49, 50 and 51 with titles ranging from 7.6 to 23.4. By comparing both groups on the experimental days 2 and 8, we did not observe any difference. However, there were differences when the analysis was performed between days 49 to 51. From the 14th experimental day, humoral response was observed through the occurrence of antibody titers in serum neutralization assays in all challenged animals. About the group 3, no animals have differed from each other. Both infection groups (latent and productive) did not differ considering antibody response.

Keywords: *Bovine herpesvirus 1*, cattle, challenge.

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