



Effect of Vaccination to IBR with Live and Dead Viruses, about the Premise Rates in Mixed Holstein Heifers



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Abstract

The present study was conducted to determine whether vaccination with bovine herpes virus type 1 (HBV-1) as prophylaxis for infectious bovine rhinotracheitis has an effect on pregnancy rates in mixed Holstein heifers in the Ecuadorian Amazon region. Sixty heifers divided into three groups of 20 animals each were used: no immunogen, live virus vaccine and killed virus vaccine. The diagnosis of pregnancy was determined (45 days post-dissemination) by trans-rectal ultrasonography. For the management of the experiment, all groups were subjected to a protocol of synchronization with prostaglandins and estradiol. Significant statistical differences were observed in the percentages of pregnancy, being higher in the control treatment (29.9%) respectively followed by treatment with live virus (19.5%) and treatment with dead virus with (19.2%). where there were statistically different values in the three treatments under study. Inoculation with bovine herpes virus type 1 has effects on pregnancy rates in mixed Holstein heifers.

Keywords: Progesterone; IBR; Ultrasound; Live; Dead Vaccines

Introduction

Infectious bovine rhinotracheitis (IBR) is an infectious and contagious viral pathology. The virus can remain dormant within the nerve ganglia and reactivated by various situations that provoke stress such as transportation, delivery and treatments with glucocorticoids causing a reduction in reproductive efficiency producing necrotic lesions in follicular, luteal, embryonic, neonatal, weight loss, and lactic acid production [1]. In the cattle breeding context of our country, the lack of control programs and prophylaxis for viral diseases becomes a predisposing environment for the incidence and prevalence of diseases such as IBR, since bovine herpes virus is a disease that attacks the tract respiratory disease characterized by rhinitis, tracheitis and fever, with abortion being the most serious direct consequence from an economic point of view. HBV-1 also causes infectious pustular vulvovaginitis, balanoposthitis, conjunctivitis; occasionally it has been associated with metritis, endometritis, mastitis, epididymitis, dermatitis, enteritis and encephalomyelitis. The objective of the present investigation is to evaluate the effect of vaccination to IBR with live and dead virus, on pregnancy rates in Holstein heifer mestizas.

Materials and Methods

The work was carried out in the Santa Clara Canton Province of Pastaza in the Ecuadorian Amazon, 60 mixed Holstein heifers were

used, the animals were sexually mature (checked by sonography) and clinically healthy, weighing at least 350 kg, aged between 18 and 24 months, who have lived for at least one year in the tropics, with a body condition between 2.75 and 3.5, also vaccinated for foot-and-mouth disease, rabies and anthrax. Three groups were formed: without control group (T) 20 heifers, vaccinated with live cattle (VV) 20 heifers and vaccinated with killed virus (hiprabovis-4) (VM) 20 heifers. At this stage, the animals were submitted to a synchronization program, so that the heifers started homogeneously a new estrous cycle, within which the respective monitoring could be performed. For synchronization, we used: estradiol benzoate at a dose of 0.5 cc per animal, and an intravaginal CIDR slow-release progesterone device at day zero, seven days later the application of prostaglandin, withdrawal of the P4 implant, estradiol injection thus initiating a new estrous cycle, which was estimated that ovulation is approximately 60 hours post treatment where were artificially inseminated with conventional semen each of the groups under study and from there determine the times for subsequent studies for percentages of pregnancy. The vaccine was applied 60 hours post-treatment of synchronization and IATF, the respective vaccine prophylaxis was with live virus (cattle master) and died (hiprabovis-4), as explained previously in the scheme of the experiment. The diagnosis of gestation was performed at 45 days by ultrasonography on the same day to all

groups under study. A completely randomized design (DCA) was used, the results were submitted to the homogeneity test, for each studied variable the arithmetic mean and the standard error (EE) were estimated. We tested whether there were significant differences between genotypes by applying variance analysis (ANOVA) to a classification criterion and multiple comparisons tests of Tukey-Kramer HSD ($p \leq 0.05$).

Results and Discussion

Table 1 shows the existence of significant differences ($p < 0.05$), from the control group with reference to the percentages of pregnancy with treatments with live virus and dead virus. The results agree with Geiser [2], where six heifers inoculated with bovine infectious bovine rhinotracheitis virus showed low pregnancy rates and progesterone levels were low. In this study the values found were lower. Woodbine [3] performed work on heifers inoculated intravenously with infectious bovine rhinotracheitis virus at days 7, 14, 21, and 28, and sacrificed 13 to 15 days after inoculation and then examined reproductive tracts to detect cytopathological changes, virus and viral antigen, where heifers inoculated on days 7 and 14 had mild oophoritis characterized by foci of necrosis and accumulation of mononuclear cells in the corpus luteum, most of these heifers also had some necrotic follicles in at least one ovary, heifers inoculated at days 21 and 28 showed no lesions of the corpus luteum but necrotic follicles were numerous in both ovaries, the viral antigen was observed in all ovarian lesions and infectious virus was isolated from some affected tissues in uterus of all heifers inoculated at 21 and 28 days [4-7].

Table 1: Pregnancy rates in each treatment under study.

Treatments	Pricing Fees%
Witness 1 (t)	26.5±0.9a
Live virus 2 (vv)	19.5±1.0b
Dead virus 3 (vm)	19.2±0.9b

Conclusion

It is concluded that IBR prophylactic vaccines with live and dead virus could affect the anatomical and endocrinological characteristics of the corpus luteum and therefore their reproductive behavior, being reflected significantly in the pregnancy rates.

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