

Efficacy of prepartum vaccination against neonatal calf diarrhoea in Nelore cattle.

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INTRODUCTION

To the best of our knowledge, studies regarding the effectiveness of prepartum vaccination in beef cattle for prevention of neonatal calf diarrhoea (NCD) are scarce in Latin America; furthermore, this research is the first in Nelore's breed.

OBJECTIVE

The aim of this study was to evaluate the efficacy of prepartum single dose vaccination against NCD, especially caused by Bovine Rotavirus type A (BoRVA) and Bovine Coronavirus (BCoV), in Nelore dams and offspring.

MATERIALS AND METHODS

A total of 117 pregnant cows (n= 81) and heifers (n=36) were randomly distributed in two groups:

- ▶ **Vaccinated (VAC):** cows=40; heifers= 19) - single dose (2ml, i.m) of a vaccine containing inactivated BoRVA, BCoV and *E.coli* antigens (Bovilis® Rotavec® Corona, MSD Brasil) at 50-60d pre calving.
- ▶ **Non-vaccinated (NVAC):** cows= 41; heifers= 17) - Single dose of saline solution 0.9% at 50-60d pre calving.

Blood samples were collected immediately before vaccination (D0) and 30 days after (D30) to evaluate the antibody (Ab) response.

Calvings were monitored, and the passive transfer of maternal Abs was evaluated between the 2nd and 3rd day of life. Diarrhoea was monitored in the first 30 days of age, and faecal samples were collected for identification of the etiological agent in diarrheic calves. Specific IgG1 Abs against BoRVA and BCoV were measured with an in-house antibody Enzyme Linked ImmunoSorbent Assay (ELISA).

Prepartum vaccination with a vaccine against neonatal diarrhoea increased the titers of IgG1 antibodies against BCoV and BoRVA resulting in a significant decrease of diarrhoea occurrence in Nelore calves.



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RESULTS

Significantly higher mean IgG1 Ab titers in serum against BoRVA and BCoV at 30d post vaccination ($P<0.0001$) in the VAC group compared to the NVAC group were found (Fig. 1A,B).

Comparable serum antibody titers were observed in calves born to heifers, while significantly higher titers were observed in calves born to cows ($P<0.01$) (Fig. 2).

A statistically significant ($P<0.05$) difference in the incidence of diarrhoea observed between the calves born to the VAC and NVAC group: 18.6% (11/59) and 29.3% (17/58), respectively.

The most prevalent agent detected with PCR in diarrheic calves was BoRVA.

FIGURE 1. Specific BCoV and BoRVA antibody levels in serum of cows in non-vaccinated and vaccinated dams.

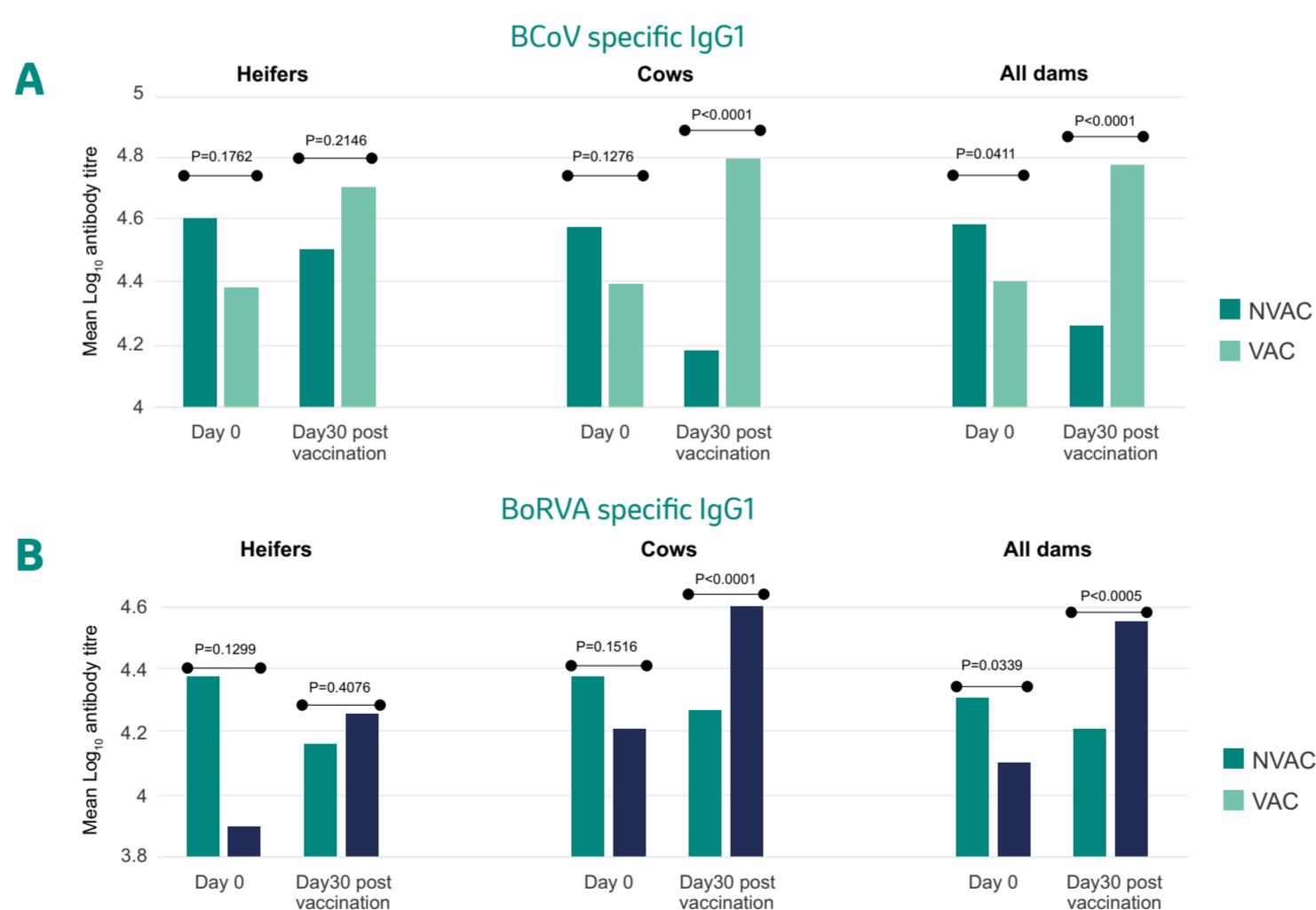
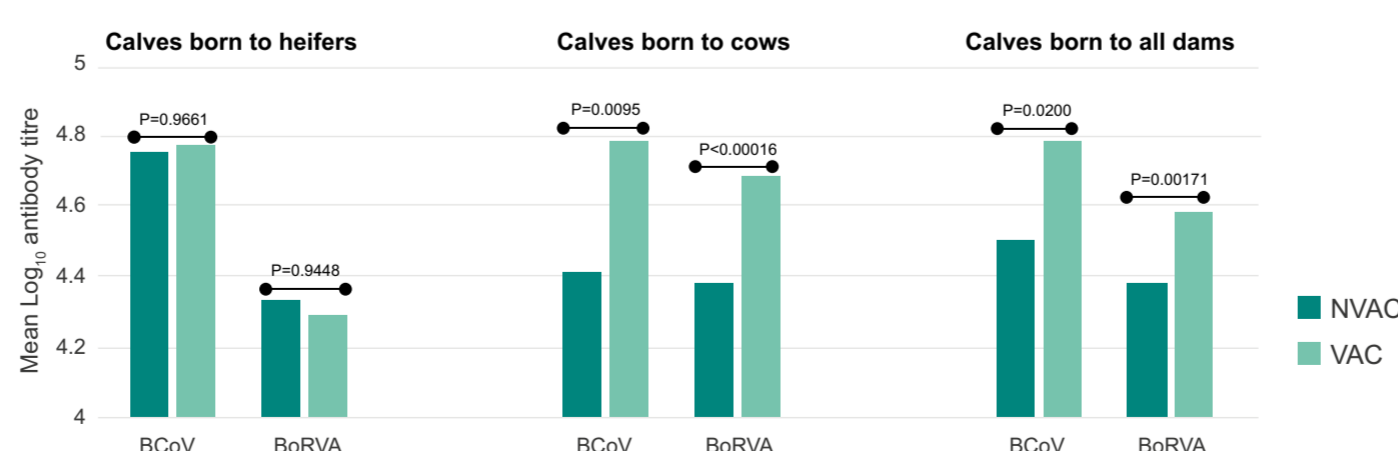


FIGURE 2. Serum antibody titers against BCoV and BoRVA in serum of calves born to non-vaccinated and vaccinated dams.



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