INFECTIOUS DISEASES

Metaphylaxis with tildipirosin did not alter the effectiveness of an experimental, monovalent vaccine of live, attenuated *Mannheimia haemolytica* administered intranasally to calves.

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INTRODUCTION

Processing high-risk beef calves may involve administration of an antibiotic (metaphylaxis) concurrently with a vaccine to prevent Bovine Respiratory Disease Complex (BRDC) **(Fig 1)**[1].

One commercial respiratory vaccine contains live bacterial components, thus the question arose, does co-administration of an antibiotic interfere with vaccine efficacy?

In a former study, another antibiotic (tilmicosin) administered concurrently had no effect on immune response of this vaccine[2].

OBJECTIVE

The purpose of this study was to determine if co-administration of a metaphylactic treatment with an antibiotic (tildipirosin (T)), with an attenuated live, experimental vaccine containing *Mannheimia haemolytica* (Mh) would impede the efficacy of the vaccine response in the face of a challenge with the same antigen.

MATERIALS AND METHODS

STUDY POPULATION:

Eighty-Eight 14-week-old Holstein/Holstein cross male calves of unknown colostrum status were transported from Nebraska to a research facility in Kansas and randomly assigned[a] to four groups and housed in non-adjacent pens in a dry-lot setting with water ad libitum and daily total mixed ration.

INCLUSION PARAMETERS:

These calves had no previous vaccinations, were negative for BVD PI (IHC)[b] had low (or no) Mh leukotoxin titers (<256)[c] and were healthy at the day of vaccination with the live Mh vaccine 5 days post arrival. Challenged (intratracheally) with Mh day 70 post arrival.

- **Table 1:** experimental treatment groups and number of calves per group.
- Lung lesion score (LLS) (Jericho)[3] comparisons were assessed by a nonparametric approach using ranks.

Under the conditions of this study, VAX (IN) administered concurrently with tildipirosin (SC) was proven efficacious after an *M. haemolytica* challenge.

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RESULTS

LUNG LESION SCORE (LLS)

No significant (P=0.39) effect of (vaccination x tildipirosin) interaction on LLS.

Also, the effect of concurrent administration of tildipirosin with vaccine compared to vaccine alone **(Fig. 2 - VAX vs. VAX + T)** on LLS was not significant. (P=0.51).

Also, of importance - There was significant effect of both vaccinated groups on reduction LLS compared to both placebo groups. (P=0.046).

FIGURE 1. Picture of an animal suffering from BRDC.

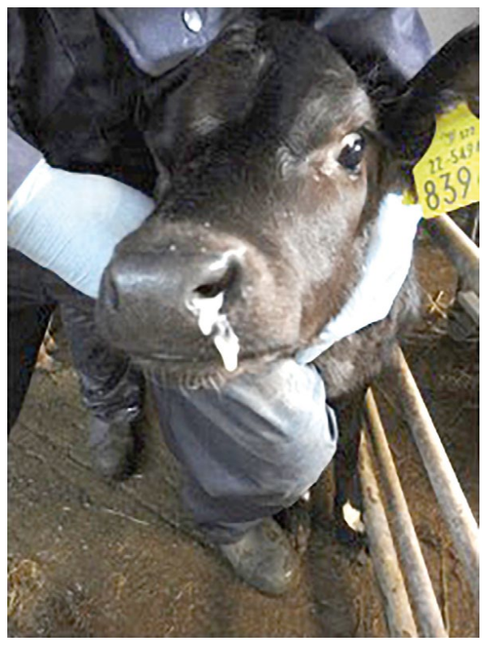


TABLE 1. Experimental treatment groups and number of calves per group.

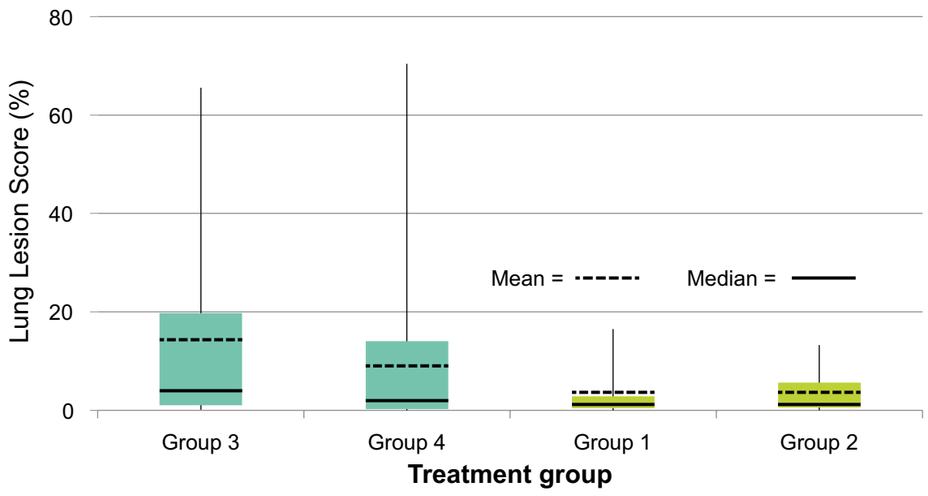
		Experimental Vaccine	
		Yes (VAX)*	**NO (PLBO)****
Tildipirosin†	No	22 head enrolled **Group 1** 20 challenged	22 head enrolled **Group 3** 20 challenged
	Yes	22 head enrolled **Group 2** 22 challenged	22 head enrolled **Group 4** 22 challenged

* **VAX** = experimental intranasal live, attenuated streptomycin-dependent *Mannheimia haemolytica* vaccine.

** **PLBO** = placebo IN vaccine.

† **tildipirosin** = Zuprevo, Merck Animal Health, Madison, NJ, USA.

FIGURE 2. Summary of Lung Lesion Score (LLS) by Treatment Group.



Group 1: VAX, **Group 2:** VAX + T, **Group 3:** PLBO, **Group 4:** PLBO + T

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REFERENCES

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2 - Guthrie CA, Fulton RW, Confer AW. 32nd Annu Conf Am Assoc Bov Pract 1999; 256.
3 - Jericho KWF, Langford EV. Can J Comp Med 1982;46:287-292.

a - Microsoft Excel RAND function.

b - Veterinary Diagnostic Center, Lincoln Nebraska.

c - Texas A& M Veterinary Medical Diagnostic Laboratory, Amarillo, TX.

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