EFFICACY OF A COMMERCIAL VACCINE CONTAINING *Histophilus somni* AND *Mannheimia haemolytica* LEUKOTOXOID IN YOUNG CALVES UNDER FIELD CONDITIONS

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OBJECTIVE

Since 2011, an action plan on the rational usage of antimicrobials has been implemented by the EU Commission (Cars 2014). Antibiotics are the main measure used for the control of respiratory problems in cattle, while vaccination could be an alternative. The aim of this study was to demonstrate the efficacy under field conditions of a commercial vaccine containing *Histophilus somni* and *Mannheimia haemolytica* leukotoxoid (HIPRABOVIS® SOMNI/Lkt) in reducing respiratory problems caused by these bacteria in cattle and in reducing the number of drug treatments.

MATERIALS AND METHODS

One hundred and thirty calves between one and two months of age and clinically healthy were randomly assigned to group A (n=64) and group B (n=66). Animals in group A were vaccinated subcutaneously with a commercial vaccine containing *H. somni* and *M. haemolytica* leukotoxoid (HIPRABOVIS® SOMNI/Lkt) according to the recommended administration programme. Animals in group B (non-vaccinated) received PBS according to the same schedule as group A.

On inclusion, the animals followed a standard protocol of hydration, deworming and bovine respiratory disease prevention (IBRV, RSV, BVDV and PIV-3 vaccine).

The main variables observed, recorded and compared against the control group were: clinical signs, lung damage and number of drug treatments. Various statistical tests were performed. The level of significance used was 95%.

RESULTS

Vaccinated calves had significantly fewer clinical respiratory signs, less lung damage and fewer drug treatments than non-vaccinated calves.

1. Clinical Respiratory Signs

The score for clinical respiratory signs, rated on a scale of 0 to 3 (cough, dyspnoea, nasal discharge, apathy, anorexia, lung auscultation, conjunctivitis and rectal temperature), was significantly higher in the non-vaccinated group (43.9% vs. 20.3%) (Mann-Whitney test; $p<0.01$). Moreover, the true incidence for control and vaccinated groups was 4.72 and 1.40 episodes per 1,000 animal days at risk respectively (Mann-Whitney test; $p<0.00001$).

2. Lung Damage

The mean percentage of pneumonic tissue in the vaccinated group was lower than in the non-vaccinated group (20.4% vs. 41.3% respectively). When comparing the number of calves showing a percentage of pneumonic tissue equal to or higher than 50%, the results were significantly higher in group B than in group A (6 vs. 1) (t-test, $p<0.05$).

3. Number of drug treatments

The number of treated animals, recurrence, the number of treatments and the drug doses were significantly higher in the control than in the vaccinated group (chi-square and Mann-Whitney test, $p<0.001$) (Table 1).

Table 1. Classification of treatments by group.

	Treated animals	Recurrence	Treatment	Doses
Vaccinated	13	5	26	60
Non-vaccinated	39	18	144	306

The number of drugs is shown in Fig. 1, demonstrating that antimicrobial usage in the non-vaccinated group was 5 times higher than in the vaccinated group. The number of NSAID doses was 57 times higher in the non-vaccinated group.

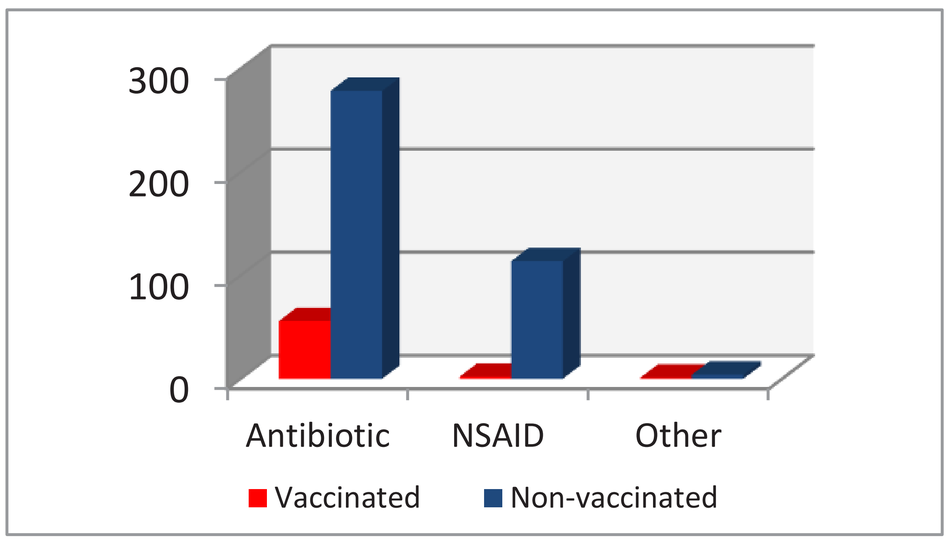

Figure 1. Number of drug doses, classified by action.

CONCLUSIONS AND DISCUSSION

The results of this study showed that vaccination with HIPRABOVIS® SOMNI/Lkt under field conditions produces a reduction in respiratory problems in calves based on the significant decrease in clinical respiratory signs and pneumonic lung lesions, as well as on the number of drug treatments. This vaccine would therefore enable the guidelines of the EU Commission to be followed by reducing antimicrobial use and improving the health status of the farm.

REFERENCES

Cars O, 2014. *Journal of Medical Science*, 119:209-214.

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