EFFICACY OF HIPRABOVIS® SOMNI/LKT IN FRONT OF A CHALLENGE INFECTION WITH *Histophilus somni* IN YOUNG CALVES

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INTRODUCTION

The aim of this study was to demonstrate the protection conferred in calves by HIPRABOVIS® SOMNI/Lkt through a challenge infection with *Histophilus somni*, one of the bacterial agent commonly isolated from pneumonic lungs in cattle and associated with clinical BRD (Terry 2013).

MATERIALS AND METHODS

Fourteen 2-months-old calves, without respiratory symptoms and serologically free against *H. somni* were divided into three groups. Animals in group A (n=6) were vaccinated subcutaneously with HIPRABOVIS® SOMNI/Lkt according to the recommended administration programme. Animals in group B (n=6) were mock vaccinated in the same conditions with PBS. Animals in group C (n=2) stayed as sentinels (not vaccinated and not infected).

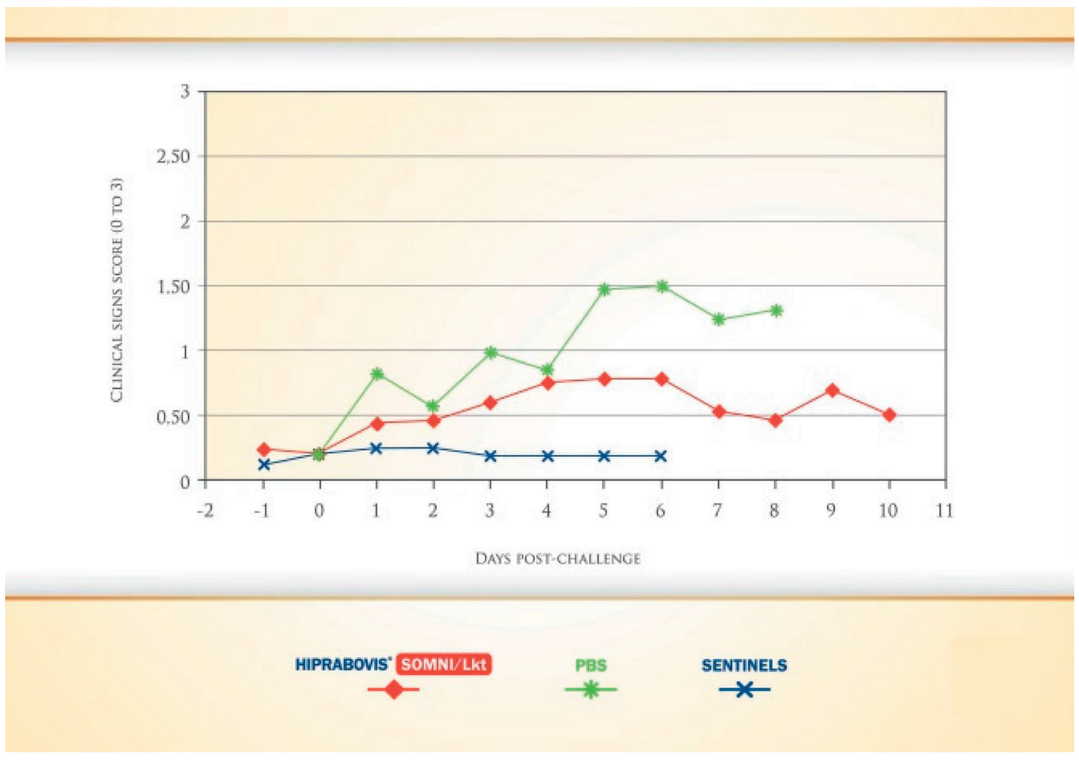
Group A and group B were experimentally infected at day 42 after first vaccination (day 0 in graph I) with an intratracheal administration of $1x10^{10}$ CFU of a pathogenic strain of *H. somni* in 10ml/calf (ref. 3238).

The main variables observed, recorded and compared to the control group were: clinical signs (rectal temperature, apathy, anorexia, nasal discharge, lung auscultation, conjunctivitis, dyspnea and cough), lung damage and serological response (microagglutination test (MAT) against *H. somni*). Different statistical test were performed. The level of significance was 95%.

RESULTS

1. Clinical Signs

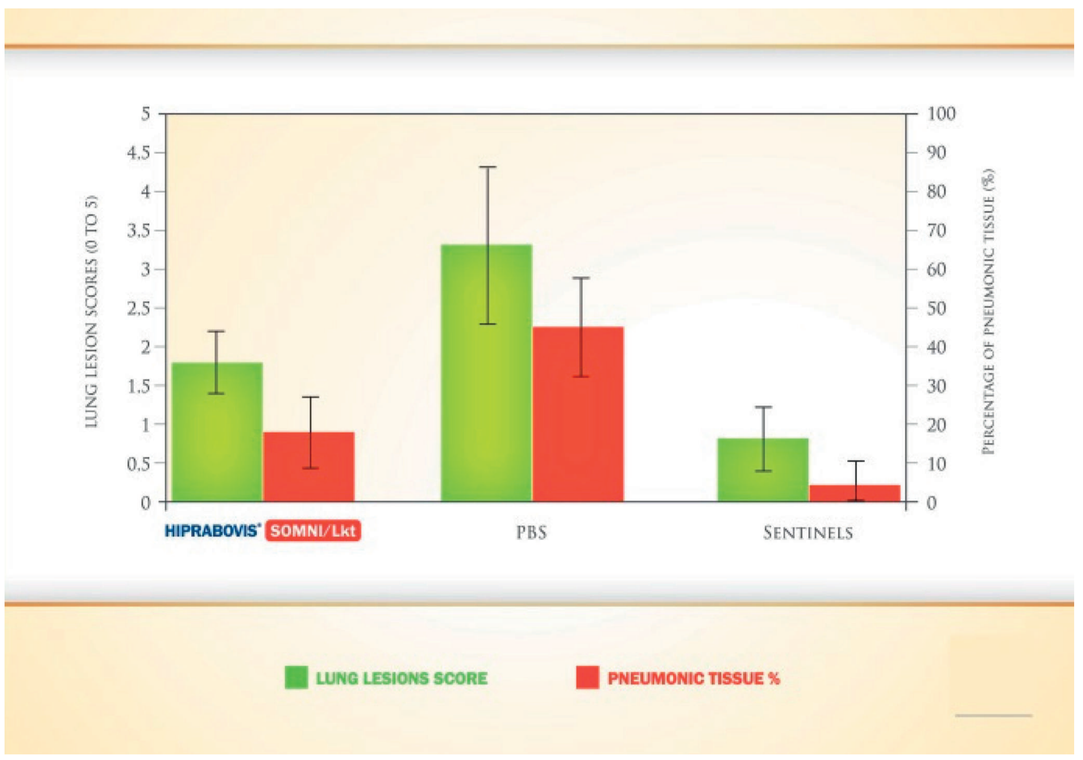
The clinical respiratory signs scored from 0 to 3 showed significant differences between vaccinated and non-vaccinated group at day 7 (p=0.040).



One calf from group B died 48 hours after the experimental infection, showing severe lung and septicemic lesions at the necropsy.

2. Lung Damage

Percentage of pulmonary tissue affected by pneumonia was: 17.8% for group A, 45.5% for group B and 4.2% for group C. The differences A-B were statistically significant (p=0.008). Severity of pulmonary lesion evaluated by palpation and visual estimation for extent and nature of damaged lung tissue (score 0 to 5) was: 1.8 in group A, 3.3 in group B and 0.8 in group C, with significant differences between A-B (p=0.014).



3. Correlation between the serological response and extent of lung lesions.

Antibody levels against *H. somni* measured by MAT showed a significant positive correlation with the reduction of lung lesions. According to this, the minimum protective agglutinating titer for calves was ≥5.4 log2 (GMT 42.2), considering that a protected calf had a percentage of lesion reduction equal or higher than 50% after the challenge infection.

CONCLUSIONS

HIPRABOVIS® SOMNI/Lkt proved to be effective in front of an experimental infection with *H. somni* presenting significantly fewer respiratory problems and reducing percentage and severity of pneumonic lesions. Therefore, the clinical and economic consequences associated with the pathogenesis of this bacterial agent could be reduced using this vaccine, as well as the risk of suffering clinical BRD.

REFERENCES

Terry WL, 2013. Tulare Calf Project Pathogen Summary. UC Davis Veterinary Medicine.

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