Mycoplasma hyopneumoniae microbial load and histological lesion reduction in piglets vaccinated with MycoFLEX®

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INTRODUCTION

Pig vaccination against *Mycoplasma hyopneumonie (Mhp)* is the standard control tool for Enzootic Pneumonia

Economic benefits of vaccination have been reported in several studies and vaccination protocols are most effective when used simultaneously to other management procedures

Advantages of *Mhp* vaccination are:
- a) improvement of daily weight gain
- b) improvement of feed conversion ratio
- c) reduction of clinical signs and lung lesions

It has been proposed that this effect is due to the ability to reduce the number of microorganisms in the respiratory tract and the ability to reduce damage on the lung tissue

The objective of the study was to evaluate the ability of MycoFLEX® in pigs of 3 weeks of age on the reduction of microbial load and microscopic lesions after challenged with *Mhp*

MATERIALS AND METHODS

180 piglets (3 weeks of age) were randomly allocated in two treatment groups

T1: non vaccinated (90 pigs)
T2: vaccinated (90 pigs)

(Calculation to achieve a power of 0.80 at an alpha level of 0.05)

Table 1: Timeline of activities and testing

Day	Activity	Testing/Scoring
0	T2 group vaccinated	
28 and 29	T1 and T2 groups challenged intratracheally with *Mhp* strain 232	
56	Formalin fixed Lung Tissues	Histopathology
	Bronchial swab	*Mhp* qPCR
	Bronchial Alveolar Lavage (BAL)	*Mhp* qPCR
	Lung Lesion Scoring	PigMON Methodology

RESULTS

Statistical analysis revealed that vaccinated group had a significant reduction ($P < 0.01$) of 30% on *Mhp* qPCR results in both BAL and Bronchial Swabs as compared with non-vaccinated

Microscopic lung scoring was 2.17 for T1 and 1.84 for T2 ($P < 0.05$)
PigMON lung scoring was 13.00 for T1 and 8.8 for T2 ($P < 0.05$)

No significant difference was observed on *Mhp* load between BAL and Bronchial Swabs samples in either vaccinated or non-vaccinated piglets ($P > 0.05$)

DISCUSSION AND CONCLUSION

Under the conditions of this study vaccinated piglets had a reduction in colonization as compared to non-vaccinates

qPCR on BAL or bronchial swabs samples can be a suitable method for microbial load assessment as part of *Mhp* vaccine efficacy evaluations

This effect leads on the significant improvement in histopathologic and lung lesion scoring compared to non-vaccinated pigs, documenting a clear modification of the *Mhp* pathogenesis

This study confirms the importance of pig vaccination to minimize the pathogenic effect in pigs exposed to *Mhp* and shows that Ingelvac MycoFLEX® is effective in aiding in the reduction of Enzootic Pneumonia