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The Efficacy of Strategic Medication with Lincomycin Hydrochloride and/or Vaccination Against *Mycoplasma hyopneumoniae* to Control Chronic Respiratory Disease in a Swine Farm

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Introduction

Enzootic pneumonia, caused by *Mycoplasma hyopneumoniae* (Mh) as major pathogen, is a chronic respiratory disease in nursery-finishing pigs. It causes economic losses to the pig industry worldwide (1). The results of different studies showed that Mh vaccination could improve performance of finishing pigs and decrease the number of lung lesions at slaughter. Antimicrobials can be used in a flexible way, when respiratory outbreaks are expected. In this respect, strategic medication against respiratory disease may be warranted, even in Mh vaccinated pigs. Ibayashi and others (2) have demonstrated the efficacy of lincomycin as in-feed medication for controlling naturally occurring enzootic pneumonia. The objective of the present study was to assess the efficacy of 3 different strategies to control chronic respiratory disease in nursery-finishing pigs, namely preventive in-feed medication using 220 ppm of lincomycin (Lincomix® 600 Premix, Pharmacia Animal Health), vaccination against Mh (Stellamune™ *Mycoplasma*, Pfizer Animal Health), and the combination of both strategies.

Materials and Methods

The study was conducted in a closed 200-sow farm. According to the herd health veterinarian, the nursery-finishing pigs suffered from chronic respiratory disease. From a sample of 80 slaughter pigs, 43% had pneumonia lesions. Out of 15 randomly taken blood samples of pigs of 80kg, 86% had antibodies against Mh. In total, 245 piglets were selected for the trial and randomly assigned to one of four treatment groups. The trial was double-blinded. Pigs of the vaccination (V) and lincomycin plus vaccination (L+V) group were vaccinated twice against Mh according to label instructions. Pigs belonging to the lincomycin (L) and the lincomycin plus vaccination (L+V) group received a feed containing 220 ppm lincomycin during the first three weeks of the growing period. Pigs of the C group were left untreated. During the nursery-finishing period, pens of different treatment groups were randomly distributed over 3 identical compartments. DWG, FCR and mortality were major variables of comparison. DWG was calculated at pig-level; FCR was calculated at pen-level. Minor variables of comparison included clinical symptoms, pneumonia lesions at slaughter and serology for Mh antibodies. The clinical symptoms were evaluated weekly by the percentage of pigs that coughed per pen, i.e. coughing index. Fifteen pigs per group were successively blood sampled at 3, 10, 20 weeks of age and at slaughter for Mh serology.

DWG, FCR and the coughing index were analysed using ANOVA. Mortality rate, serological results and prevalence of lung lesions were analysed using Pearson's Chi-square.

Results

In the growing period (D71-D98), ADG was significantly better (53 g/day) for the L+V group compared to the C group ($p<0.05$). During the nursery-finishing period the FCR was significantly better ($p<0.05$) for the V group compared to the C group. The mortality rate, the mean coughing index, the prevalence of pneumonia lesions and the seroprevalence for Mh were similar for the four groups (Table 1, and Figure 1)

Table 1 Results of major variables (DWG, FCR, mortality) and minor variables (coughing index, lung lesions) in the 4 groups in the nursery-finishing period (D29-slaughter)

Parameter	C group	V group	L group	L+V group
DWG (g/day)	620	645	640	634
FCR	2.41 ^a	2.31 ^b	2.40 ^{a,b}	2.36 ^{a,b}
Mortality (%)	2	3	2	2
Coughing Index	2.0	2.3	3.2	1.6
Prevalence of pneumonia (%)	34	29	48	40

^a Within each row, values with a different superscript are significantly different by least significant difference ($P<0.05$)

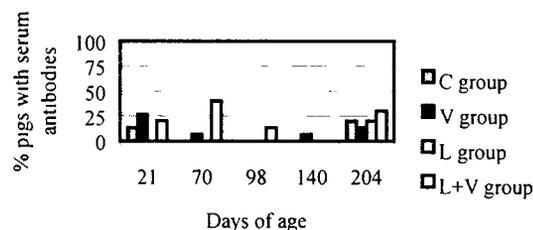


Figure 1 Seroprevalence of *Mycoplasma hyopneumoniae* at different ages for the 4 groups

Discussion and Conclusion

In this swine farm the combination of Mh vaccination and preventive medication with lincomycin did not produce any additional value compared to either single preventive program. The fact that there was a low infection pressure of Mh during the trial could have influenced the results. Further trials preferably including a larger number of pigs and pig herds should be conducted to confirm these results.

References

1. Ross R., 1999. Diseases of Swine 8th Edition, pp 495
2. Ibayashi et al., 1990. Proceedings 11th IPVS congress, Lausanne, Switzerland, pp 88