

CORRELATION OF MYCOPLASMA HYOPNEUMONIAE DETECTION WITH GROSS AND MICROSCOPIC LUNG LESIONS IN A FARM BETWEEN VACCINATED AND NON-VACCINATED PIGS.

M Sibila¹, M Nofrías¹, S López-Soria¹, J Segalés², O Valero³, A Espinal³, P Riera⁴, D Llopart⁴, M Calsamiglia¹

¹CRESA, CERDANYOLA DEL VALLÈS, Spain

²CRESA-UAB, CERDANYOLA DEL VALLÈS, Spain

³Servei d'Estadística U.A.B, CERDANYOLA DEL VALLÈS, Spain

⁴Pig Techn. Dep. Lab. Hipra S.A, AMER, Spain

Introduction

The objective of this study was to correlate *Mycoplasma hyopneumoniae* (*M. hyopneumoniae*) detection with presence of enzootic pneumonia (EP) gross and microscopic lung lesions in pigs vaccinated with two different protocols.

Materials and Methods

A total of 405 pigs from a one-site, farrow-to-finish farm with continuous flow, were included in this study. At 1 weeks of age, piglets were ear-tagged and randomly assigned to one of the following treatments: 1) two doses of vaccine (MYPRAVAC SUIS®, Laboratorios Hipra S.A, Spain) at 1 and 3 weeks of age (n=135), 2) one dose of vaccine at 6 weeks of age (n=133) and 3) no vaccination as a control group (n=137). At 3, 6, 9, 12, 15, 18 and 22 weeks of age, 12 to 18 pigs per treatment were necropsied. The remaining pigs were slaughtered at 25 weeks of age.

EP compatible gross lesions were registered on a lungs' diagram with a maximum score of 35 points (1). Lung samples were collected for microscopic examination. Microscopic lesions were graded as EP suggestive (broncho-interstitial pneumonia with broncho-alveolar lymphoid tissue hyperplasia) and EP non-suggestive (other findings) lung lesions. From all animals, a bronchial swab was taken. DNA from swabs was extracted and the nPCR to detect *M. hyopneumoniae* performed as previously described (2).

A non parametric was performed to compare EP compatible gross lesions scoring between treatments Chi-Square analyses were performed to compare EP suggestive lung lesions and *M. hyopneumoniae* detection at bronchi between treatments. Statistical analyses were performed with SAS system for windows version 8.0. Statistical significance was set at $p < 0.05$

Results

Pigs treated with two doses of vaccine showed lower gross EP suggestive lung lesion scores in all sampling ages (but at 6 and 9 weeks of age) than non-vaccinated pigs (Fig. 1). These lesional scores were significantly lower ($p < 0.05$) in double vaccinated pigs (3.12 score) compared to control pigs (7.71 score) at 25 weeks of age. No significant differences were observed between lesional scores of pigs that received one or two vaccinations.

No significant differences between EP suggestive microscopic lung lesions between treatments in any age-group were observed.

M. hyopneumoniae was detected in bronchial swabs of pigs at all tested age-groups (Fig. 2). This detection was relatively low (<10%) until 9 weeks of age. The percentage of nPCR positive pigs increased at 15 weeks of age, and it was maintained high until slaughter. No statistical

significant differences in percentage of *M. hyopneumoniae* detection at bronchi were observed among treatments at any age-group.

Discussion

The present study shows the evolution of EP suggestive lesions and *M. hyopneumoniae* infection at bronchi in pigs from weaning to slaughter in a farrow-to-finish herd.

The evolution of gross lesional scores was in fairly accordance with the detection of the *M. hyopneumoniae* in bronchi; however, while differences in lesional scores were observed among treatment groups, these were not detected in regards the *Mycoplasma* presence. It should be possible that a quantitative approach on *M. hyopneumoniae* detection would detect potential differences among vaccinated and non-vaccinated groups.

The lack of microscopic lung lesion differences among groups would be explained by the fact that they are only qualitative (present or absent), but they do not give any clue on the extension of them.

Under the conditions of this field study, the use of a double vaccination protocol to *M. hyopneumoniae* was the most efficient one in reducing EP suggestive lesions at slaughter.

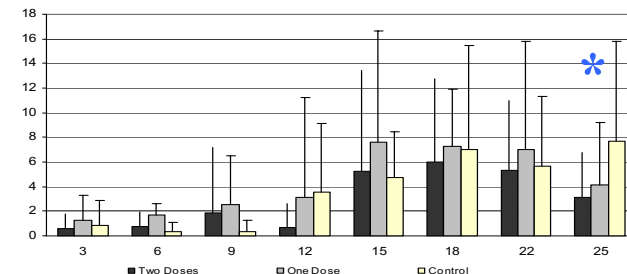


Figure 1 Mean gross lung lesions compatible with EP ($\pm$ standard deviation) per treatment and per week. * $p < 0.05$

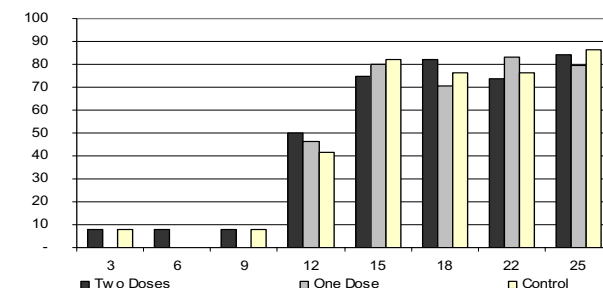


Figure 2 Percentage of pigs with nPCR positive bronchial swab per treatment and per week.

References

- Hannan et al. (1982). R Vet. Sci 33: 76-88
- Sibila et al., (2004). Vet. Rec. 55 (2), 57-59