



Effects of pre-farrowing sow vaccination against *Mycoplasma hyopneumoniae* on offspring colonisation and lung lesions

I. Arsenakis, A. Michiels, G. Schagemann, C. O. Gomez-Duran, F. Boyen, F. Haesebrouck, D. G. D. Maes

Introduction

Mycoplasma hyopneumoniae is the primary agent of enzootic pneumonia, a chronic respiratory disease that causes major economic losses in the pig industry. The vaccination of suckling or weaned piglets is one of the most common ways to control *M hyopneumoniae* infections.

Vaccination of gestating sows against *M hyopneumoniae* is not frequently practiced under field conditions. Nevertheless, breeding sows could be a reservoir of *M hyopneumoniae* infections for the suckling and recently weaned piglets. In this context, it has been suggested that low parity sows are more likely to transmit the pathogen to their piglets than higher parity sows.

This study was conducted in two herds (A and B) and investigated whether vaccination of sows at the end of gestation influenced the *M hyopneumoniae* colonisation status of their piglets during the periweaning period as well as the prevalence and extent of *Mycoplasma*-like pneumonia lesions in those pigs at slaughter.

Approach

From four consecutive farrowing batches of sows in each herd, two batches were vaccinated (V) against *M hyopneumoniae* and two remained non-vaccinated (NV). Vaccination was applied in an alternating way, so that one NV batch was followed by

I. Arsenakis, A. Michiels, D. G. D. Maes, Unit Porcine Health Management, Department of Reproduction, Obstetrics & Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

G. Schagemann, C. O. Gomez-Duran, Boehringer Ingelheim Animal Health GmbH, Ingelheim am Rhein, Germany

F. Boyen, F. Haesebrouck, Department of Pathology, Bacteriology and Avian Diseases, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium

email: loannis.Arsenakis@UGent.be

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KEY FINDINGS

- Vaccinating gestating primiparous sows against *Mycoplasma hyopneumoniae* significantly reduced postweaning colonisation rates in their offspring, as well as the prevalence and extent of *Mycoplasma*-like pneumonia lesions at slaughter, compared with the offspring of non-vaccinated SOWS.

a V batch. In the V batches, all gilts and sows received injections of a commercial one-dose bacterin (Ingelvac MycoFLEX; Boehringer Ingelheim) at six and three weeks before the expected farrowing date.

Upon farrowing, five primiparous sows and their litters were randomly selected from each V or NV batch of sows within each herd. Primiparous sows were selected in order to increase the likelihood of detecting piglets colonised with *M hyopneumoniae* at weaning. Laryngeal swabs were collected from the piglets of the selected sows at weaning and seven days postweaning. Oral fluid samples were collected from each nursery pen hosting pigs originating from the selected sows at seven days after weaning. Within each nursery and fattening unit, the pigs of the selected sows were housed in different pens along with the rest of the pigs from the same farrowing batch.

Laryngeal swabs and oral fluids were tested for *M hyopneumoniae* by nested PCR. Upon slaughter, the prevalence and extent of *Mycoplasma*-like pneumonia lesions (lung lesion score [LLS]) in the offspring of the selected sows was recorded.

Results

The percentage of piglets being laryngeal swab-positive for *M hyopneumoniae* at weaning and seven days postweaning was V-A 14.2 per cent, NV-A 20.0 per cent, (P=0.225); V-B 0.9 per cent, NV-B 0.8 per cent, (P=0.948) and V-A 0.8 per cent, NV-A

7.0 per cent, (P=0.039); V-B 1.8 per cent, NV-B 2.5 per cent, (P=0.738), respectively. The percentage of nursery pens being oral fluid-positive was V-A 0 per cent, NV-A 50 per cent, (P=0.429); V-B 6.7 per cent, NV-B 11.8 per cent, (P=1.000).

The percentage of pigs with *Mycoplasma*-like pneumonia lesions at slaughter was V-A 56.8 per cent, NV-A 77.1 per cent, (P=0.045); V-B 74.1 per cent, NV-B 78.7 per cent, (P=0.649). The average LLS was V-A 15.5 per cent, NV-A 26.4 per cent, (P=0.021); V-B 9.7 per cent, NV-B 8.4 per cent, (P=0.541).

Interpretation

In herd A, vaccination of the gestating primiparous sows significantly reduced the number of their offspring found to be colonised at seven days postweaning as well as reducing the prevalence and extent of *Mycoplasma*-like pneumonia lesions in those pigs at slaughter, compared with the pigs of the NV sows.

In herd B, there were no significant differences detected for any of the aforementioned parameters between the pigs of the V and NV primiparous sows and a possible explanation might be the lower colonisation pressure observed in the piglets of that herd.

The detection of *M hyopneumoniae* in oral fluid samples obtained from postweaned pigs needs further optimisation. This was indicated by the lack of significant differences in the detection of oral fluid-positive nursery pens between the V and NV farrowing batches (especially in herd A) and by the fact that pens which included laryngeal swab-positive pigs (as general evidence that colonised pigs were present in these pens) were oral-fluid negative.

Significance of findings

Vaccination of sows could be a useful tool to control *M hyopneumoniae* infections in herds that maintain a high proportion of primiparous sows and where a substantial percentage of colonised piglets are detected at weaning.