

Immune response of a One-Shot PCV-M hyo RTU vaccine in 3-week old piglets

A. Catella¹, E. Canelli¹, L. Ferrari¹, G. Ogno¹, E. De Angelis¹, P. Borghetti, R. Jolie², P. Martelli
¹Department of Veterinary Science, University of Parma, Italy;²Merck Animal Health, Madison, NJ, USA

INTRODUCTION

PCV2 and *M. hyopneumoniae* (M hyo) are two major pathogens affecting pig herds globally. Vaccinations for both antigens are available but improvement of their efficacy is being investigated. This study was done to assess the efficacy of Porcilis[®] PCV M Hyo administered to piglets at 3 weeks of age in comparison with a commercial vaccine combination and with a negative control group (placebo). The immune response to PCV2 and *M. hyo* was studied by measuring immunological parameters of the Antibody Mediated Immunity (AMI) and Cell Mediated Immunity (CMI) by serology (ELISA and IPMA) and INF-gamma SC specific for PCV2 and *M. hyo*.

MATERIAL AND METHODS

The study was a controlled, randomized and blinded design in a conventional Italian pig herd. Six hundred (600) piglets at 3 weeks of age were enrolled and assigned to three equally sized groups: group A) vaccinated with Porcilis PCV M Hyo (PCVM group); group B) vaccinated with a commercial vaccine combination and group C) controls receiving placebo. Blood samples were collected at regular intervals during the study from 25 pigs per group for determination of the PCV2 viremia and the AMI (ELISA antibodies and IPMA) and CMI (IFN-gamma SC) specific to PCV2 and *M. hyo*. The sera were tested for antibodies to PCV2 and to *M. hyo* using the following tests: PCV2 antibodies were detected with an in-house ELISA; *M. hyo* ELISA_MH, Swine HerdChek *M. hyo* (IDEXX) and PCV2 IPMA was performed as described by Rodriguez-Arrioja et al. (2000). The number of *Mycoplasma*-specific IFN γ secreting cells (SC) was determined by ELISpot assay as previously described (Martelli et al., 2011).

RESULTS

In the A group, 48% of the animals were seropositive to *M. hyo* by wk 4, increasing to 96% in wk 18 of the study and staying around 90% until the last sampling. The percentage of positive animals in the control and B group stayed low until wk 6 and then increased in week 18 to 52% and 80%, respectively.

The mean PCV2 antibody titre at vaccination was approximately 6.2. The titre in the control group declined to zero in week 14 and remained zero. In the B group, the titres slightly increased to 7.4 in wk 6 and then declined to 4.4 in wk 30.

The Porcilis PCV M Hyo vaccinated group showed a positive increase to 11.2 after vaccination and still had a mean titre of 7.2 in wk 18 of the study.

The number of *M. hyo* specific IFN γ -secreting cells rapidly increased after vaccination with Porcilis PCV M Hyo and peaked in wk 4, followed by a gradual decline until wk 20. In the B group, only a minor response was observed, which was only marginally higher than in the control group.

CONCLUSIONS

The results from this trial supported that Porcilis PCV M Hyo induced a stronger and long lasting antibody and cell-mediated immune response (memory T cells) compared to vaccine B and control.

REFERENCES

- Martelli P, et al. (2011). Vet. Microbiol. 149: 339-51.
- Rodriguez-Arrioja GM, et al. (2000). Vet. Rec. 146, 762-764.

