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Efficacy of Ingelvac CircoFLEX® in face of maternal antibodies in a field trial in France

B Grosse Liesner[1], F-X Orveillon[1], V Fachinger[1], J-P Denotte[2]
[1]Boehringer Ingelheim Vetmedica GmbH, Ingelheim, Germany
[2]Clinique vétérinaire Faubourg de Châlons, Vitry Le François, France

Introduction

A field trial was conducted in France to determine the efficacy of Ingelvac CircoFLEX®(1). The objective of this study was to analyse the possible interference of maternal PCV2 antibodies and efficacy of vaccination based on the results of this field trial.

Materials and Methods

Piglets were included and vaccinated at 2 to 3 weeks of age (n=775). All animals for which weight gain and maternal PCV2 antibody titer at vaccination were available were evaluated in this study (n=723). Weight gain was measured by weighing pigs individually at inclusion and at the end of the trial at 22 weeks of age.

In addition, blood samples were taken from all animals at inclusion to determine maternal PCV2 antibodies. PCV2 antibodies were measured using an indirect fluorescence antibody titration (IFAT) assay. Serial dilutions of serum were tested in triplicates. Antibody titres were calculated by the method of Reed and Muench using the highest dilution still showing specific IFAT reactivity and the number of positive wells per dilution. The method allowed the detection of antibody titres in a range 1:5 and 1:20480.

Weight gain was the primary parameter to assess the efficacy of PCV2 vaccination. Weight gain was therefore chosen to test the possible interference of maternal PCV2 antibodies and vaccine efficacy.

The influence of maternal antibodies on weight gain was estimated using an simple linear regression model (SAS System, SAS Institute Inc., Cary, North Carolina, v 8.2.). For testing purposes PCV2 antibody titers were transformed into log values.

Results

Efficacy of vaccination was demonstrated in this field trial. At the end of the study vaccinated animals were significantly heavier (2.39 kg) than non-vaccinated animals (1). The PCV2 maternal antibody titer in vaccinated animals at time of vaccination varied from 1:10 to 1:20480, with a geometric mean of 1:392. There was no significant interrelation (p = 0.1874) between level of maternal antibodies at time of vaccination and weight gain in the vaccinated animals (Fig 1).

Figure 1. Interrelation between weight gain and maternal PCV2 antibodies at inclusion in vaccinated animals (n=723)
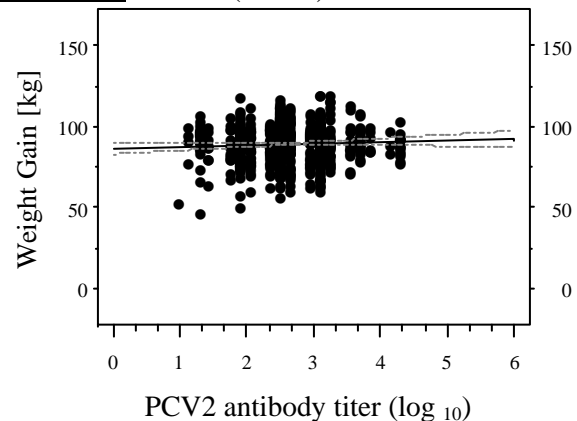
Conclusions

Maternal antibodies present at the time of vaccination in a range of 1:10 to 1:20480 did not interfere with efficacy of the vaccine. These results correspond with outcomes of two other European field studies demonstrating successful vaccination at 2-4 weeks of age in face of high maternal antibody titers (2,3).

References:
(1) Orveillon et al. (2008) Leman submitted
(2) Kixmöller et al. (2008) Vaccine 26: 3443-3451
(3) Fachinger et al (2008) Vaccine 26: 1488-99