

Efficacy of a novel One-Shot PCV2 Vaccine in a multi-site production system in Southern Germany

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Introduction

Porcine circovirus type 2 (PCV2) is considered to be essential for the development of the post-weaning multisystemic wasting syndrome (PMWS). The objective of this study was to investigate the efficacy of a novel one-shot PCV2 vaccine (Ingelvac CircoFLEX®, Boehringer Ingelheim Vetmedica GmbH, Germany) with regard to clinical signs and performance under field conditions in Southern Germany.

Materials and Methods

The field trial was conducted in a “pig producing cooperative” consisting of 15 different breeding farms with different health status and herd size (50 to 300 sows). A total of 1519 pigs were included in the trial and received either 1 ml Ingelvac CircoFLEX® i.m. (n=754) or 1 ml placebo i.m. (n=765) at approximately 3 weeks of age. At an age of 4 and 12 weeks the animals were transferred to one nursery farm and one grower/finisher farm respectively. Vaccinated and placebo-treated pigs were kept commingled in the same pens. All pigs were monitored once weekly for clinical signs and were weighed individually at 3, 10, 15, 20 and 26 weeks of age. Animals with a body weight of at least 25 % less than the average body weight of the respective treatment group were defined as runts. As regard to frequency of clinical signs, runts and mortality groups were compared with Fisher’s exact test.

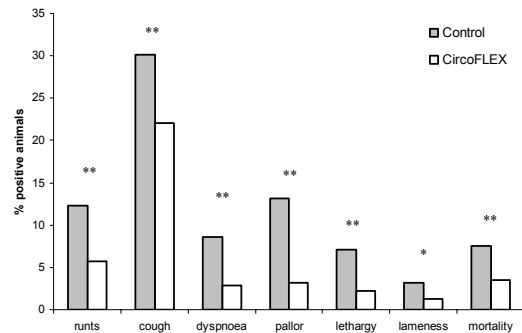
In addition to that blood samples were taken to determine PCV2 antibodies and viremia. Vaccination significantly reduced the number of viremic pigs, duration of viremia and viral load independent of the level of maternal antibodies at time of vaccination (1).

Results

Before onset of viremia (3 – 10 weeks of age) the frequency of clinical signs and mortality was generally low with no significant differences between the treatment groups. After onset of viremia (10 – 26 weeks of age) coughing was beside wasting the most predominant finding among both groups. Compared to unvaccinated animals a significant lower proportion of vaccinated animals showed wasting (12.3% versus 5.7%; p<0.001), cough (30.2% versus 22.0%; p=0.0004), dyspnoea (8.6% versus 2.9%; p<0.001), pallor (13.1% versus 3.2%; p<0.0001), lethargy (7.1% versus 2.19%; p<0.001) and lameness (3.2% versus

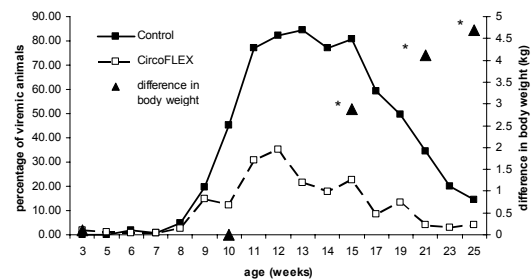
1.2%; p=0.0127). After onset of viraemia placebo-treated animals had a 53 % higher mortality rate than the vaccinated animals (7.48% versus 3.50%; p=0.0010). Average daily gain (ADG) after onset of viraemia was significantly improved in the vaccinated group (0.722 vs. 0.766 g/day, p<0.0001) resulting in a 4.70 kg higher body weight at the end of the trial (102.53 versus 107.23 kg; p<0.0001).

Figure 1. Runts¹⁾, clinical signs and mortality after onset of viremia (10 – 26 weeks of age)



1) at 15 weeks of age
 * significantly different at p≤0.05
 ** significantly different at p≤0.001

Figure 2: Percentage of viremic animals and difference in body weight in subject to age and treatment group



* significantly different at p≤0.001

Discussion

Clinical signs, number of runts and mortality were significantly reduced in the vaccinated animals compared to the placebo-treated group, whereas the ADG was significantly improved. It can be concluded from this study that the one-shot PCV2 vaccine was highly efficacious in the control of PMWS under normal field husbandry conditions.

References

(1) Ritzmann M et al. IPVS 2008 submitted