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Investigation of PCV2-free herds

Kristensen¹, C.S., Larsen², L.E.

¹Pig Research Center, Danish Agriculture & Food Council. ²National Veterinary Institute of Denmark.

Introduction and Objectives

Porcine circovirus type 2 (PCV2) is considered the essential infectious agent of postweaning multisystemic wasting syndrome (PMWS) (1). Typical PMWS is characterised by wasting and increased mortality of pigs 4-12 weeks of age after weaning. In most countries, the PCV2 related problems have changed from typical PMWS to a more "endemic" form of disease characterised by lower mortality, poor growth and unspecific clinical signs such as increased prevalence of respiratory and enteric problems. In addition to the changed clinical scenario the age of affected pigs has changed so that these diseases (often referred to as Porcine Circovirus Diseases-PCVD) are seen in weaners, growers and even finishers.

Based on the promising results of using real time PCR for the diagnosis of typical PMWS at the herd level, several diagnosticians now use PCV2 serum profiles to clarify whether a particular herd suffers from PCVD. A typical profile consist of five to ten blood samples from each of three to five different age groups of growing pigs, where the PCV2 copy number is measured (2). If moderate to severe viraemia (more than 10^6 copies of PCV2/ml serum) coincides with the development of clinical signs of disease the PCVD diagnosis is considered supported.

In 2009, PCV2 profiles from 196 herds have been completed by the diagnostic laboratory at the National Veterinary Institute, Copenhagen. A review of these profiles showed that in 28% of the herds the level of PCV2 in serum was below the detection limit of the assay ($<10^3$ copies/ml) in all pigs. This was quite a surprise since for the majority of herds the samples for PCV2 test were probably sent because of a suspicion of PCV2 related problems and studies performed five to six years ago showed that the herd prevalence of PCV2 in Denmark was above 90%. This finding can be explained by the fact that these herds have low or no circulation of PCV2 or that there is a pronounced fluctuation in the level of PCV2 circulation over time.

The objective of the study is to clarify whether the negative PCV2 profile found in some pig herds means that some herds, at this stage of the PCV2 "epidemic", are able to clear the infection or whether the negative profiling is due to a tem-

poral fluctuation in the PCV2 infection pressure at the herd level.

Material and Methods

Herds with a negative PCV2 profile will be selected based on diagnostic submissions to The National Veterinary Institute, Copenhagen. Just prior to the commencement of the study the profiles will be repeated and only herds with a negative profile will be included.

Included herds will be observed over a period of one year. Sampling will be performed once every second months – i.e. six samplings per herd. At each sampling, blood samples will be collected from each of 10 pigs at 30 kg; 50 kg and 100 kg.

The level of PCV2 will be quantitated by testing serum samples using quantitative real time PCR (2). The samples taken at 100 kg will also be tested for antibodies against PCV2 using an ELISA (3). All tests will be performed at the National Veterinary Institute, Copenhagen

Results and Discussion

At present new profiles have been taken in eight herds. Only two herds have been found negative in the repeated sampling and included in the study.

Herd 1 is a fattening herd (30-110 kg) that uses Ingelvac®CircoFLEX. The herd has been tested two times and all samples have been negative in PCR. The ELISA has been positive, possible due to vaccination. Herd 2 is a sow-finishing herd that has been tested twice and all samples have been negative in PCR. The Elisa has been negative.

Further results will be presented at the congress.

References

1. Segales et al., 2005. Anim Health Res Rev, 6, 119-142
2. Hjulsager et al., 2009. Vet Mic, 133, 172-178.
3. Kristensen et al., 2009. Vet Mic, 138, 244-250.

Acknowledgments

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