Sponsors

University of Minnesota
College of Veterinary Medicine

College of Food, Agricultural and Natural Resource Sciences

Extension Service

Swine Center

Thank you to **IDEXX Laboratories** for their financial support to reproduce the conference proceeding book.

Production Leader
Steven Claas

Production Assistant
Steven Claas
Janice Storebo
Sarah Summerbell

Layout and CD-ROM
David Brown
Tina Smith

Logo Design
Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

An investigation into increased finishing mortality associated with uncomplicated PCV Type 2 infection: A case report

V Wilt[1], S Patterson[2], G Cline[3]
[1]Paris Veterinary Clinic, Paris MO; [2]Northeast Veterinary Service, Shelbina, MO; [3]Boehringer Ingelheim Vetmedica, Inc., St. Joseph, MO

Introduction

Porcine Circovirus type 2 is the causative agent of Porcine Circovirus Associated Disease (PCVAD).[1] The purpose of this study was to conduct a structured diagnostic investigation to identify factors associated with increased finishing mortality in a PRRS and *Mycoplasma hyopneumoniae*-negative production system.

Materials and Methods

A multiple site, 1250 sow system previously shown to be negative for PRRS and *Mycoplasma hyopneumoniae* infections was used in this study. The finishing mortality rate had increased from 1-3% to 10-12%. Four "case" pigs with representative clinical signs during the period historically associated with peak mortality were euthanized, necropsied and tissue and serum samples collected. One asymptomatic "control" pig was processed in the same manner. The process was repeated in age groups of animals 3 and 6 weeks prior to the period of historical peak mortality. Cross-sectional serum samples were also obtained from the breeding and gestation barns and pigs at 3, 10, 14, 18 and 22 weeks of age. PRRS ELISA, M hyo ELISA, Salmonella ELISA, and PCV2 quantitative PCR (qPCR) tests were run on the individual sera while sera were pooled 5:1 for PRRS PCR testing. Tissues were tested individually for PCV2 IHC, and processed and pooled 5:1 for PRRS PCR, M hyo PCR and SIV PCR testing.

Results

The four "case" pigs from the peak mortality and 3 weeks prior to peak mortality populations were negative on all serum and tissue tests for PRRS, M hyo, SIV and Salmonella but positive for PCV2 on both serum qPCR and tissue IHC (Table 1). The control pigs in the same two groups were uniformly negative to all the above tests except for the PCV2 serum qPCR. All pigs at 6 weeks prior to peak mortality were uniformly negative, except one "case" pig which was positive on PCV2 serum qPCR. Gross and microscopic lesions were consistent with those described for PCVAD.

Table 1. Proportion of positive diagnostic findings from 5 pigs at each of 3 time periods leading up to clinical PCVAD.

Group	Serum		Tissue	
	PCV2	Other[#]	PCV2	Other^
Peak	5/5	Neg	4*/5	Neg
3wksprior	5/5	Neg	4*/5	Neg
6wksprior	1*/5	Neg	0/5	Neg

[#]: includes individual PRRS, M hyo and Salmonella ELISAs and pooled PRRS PCR.
^: pooled 5:1 for PRRS, M hyo & SIV PCR.
*: represents "case" pig(s).

Conclusions

The system was confirmed to be negative for PRRS virus and M hyo infections while also testing negative for Salmonella serum antibodies and SIV tissue PCR. PCV2 was detected in high numbers in sera and found in lesions typical of PCVAD in the periods 3 weeks prior to and during peak mortality. Our findings suggest that the increased finishing mortality was associated with uncomplicated PCV2 infection resulting in clinical PCVAD. Subsequent evaluation of a single-dose PCV2 vaccine (Ingelvac CircoFLEX, Boehringer Ingelheim Vetmedica, Inc. St Joseph, MO) in this herd resulted in the finishing mortality rate decreasing from approximately 8% in nonvaccinates to approximately 2% in vaccinates, consistent with pre-PCVAD mortality rates.[2]

References

1. Ellis J. et al 1999. J Vet Diag Invest, 11:3-14.
2. Cline G. et al. Submitted to 2007 Leman Swine Conference Recent Research Reports.