21ST INTERNATIONAL PIG VETERINARY SOCIETY (IPVS) CONGRESS

IPVS 2010

Proceedings

JULY 18 - JULY 21, 2010

Vancouver Convention Centre, West Building

Vancouver, British Columbia, Canada

www.ipvs2010.com

P.031

Monitoring of PCV2 infections in Piedmont farms: from diagnosis to characterization of hystological phenotypes

Katia Varello[1] Maria E. Careddu[1] Giuliano Pisoni[2] Marco Faccenda[3] Franco Kobal[3] Riccardo Madonna[3] Chiara Musella[1] Pierluigi Acutis[1] Fabio Zuccon[1] Vittorio Sala[2] Elena Bozzetta[1]

1. Istituto Zooprofilattico Sperimentale di Torino, Turin, Italy; 2. Dipartimento di Patologia Animale, Igiene e Sanità Pubblica Veterinaria - Università degli Studi di Milano, Milano, Italy; 3. Veterinary Practitioner, Cuneo, Italy

Introduction

Postweaning multisystemic wasting syndrome (PMWS) is a disease that affects late nursery and fattening pigs. Diagnosis of PMWS is based on the presence of compatible clinical signs (mainly wasting and respiratory distress), characteristic histopathological lesions, and detection of PCV2 within characteristic lesions. Microscopically, the most relevant features are lymphocyte depletion and histiocytic infiltrates in lymphoid tissues. Therefore, the sole detection of PCV2 antibodies in serum and/or viral DNA or antigen does not constitute PMWS diagnosis, since it only indicates evidence of PCV2 infection Histopathology and immunohistochemistry tests performed on a panel withdrawn from daily farm mortalities are fundamental tools for the diagnosis of PMWS. The objectives of this study were to evaluate the diffusion of PMWS in North-western Italy (Piedmont region) and the reliability of a histological grading in "farm diagnosis".

Materials and Methods

Fourteen farms with clinical signs related to PMWS were selected and a questionnaire to evaluate their clinical and management situation was drawn up.

Three to five animals (4-16 weeks old) were necropsied and samples from lung, tonsil, tracheobronchial and superficial inguinal lymph node, spleen and ileum were collected from all pigs for histopathological and PCR analysis for PCV2. Portions of tissues were fixed in 10% neutral-buffered formalin and processed by standard paraffin wax techniques for histological analysis. Samples were cut in 4±2 µm sections and stained with haematoxylin and eosin (HE) and immunohistochemically (IHC) using a monoclonal antibody against PCV2 (Ingenansa, Spain). Lung sections were scored for the presence and severity of interstitial pneumonia ranging from 0 (normal) to 6 (severe diffuse); lymphoid tissues sections were evaluated for the presence of lymphoid depletion ranging from 0 (normal) to 3 (severe) and for histiocytic inflammation and replacement of follicles ranging from 0 (normal) to 3 (severe).

In addition they were all tested by PCR for porcine reproductive and respiratory syndrome virus (PRRSV) and bacteriological and parasitological investigations were made on the basis of signs during necropsy.

Results

At post-mortem examinations some animals revealed mild to moderate hyperplasia in superficial lymph nodes and consolidation of lungs in association with broncopneumonia. Five of the 14 farms resulted positive for PMWS with at least one piglet showing typical lesions and immunohistochemical and molecular positivity. Lesion score for depletion target from 1 to 3 and for histiocytic inflammation from 1 to 2. Further 9 farms resulted negative for PMWS and lesion score resulted 0 or 1 for both depletion and histiocytic inflammation. Lesion score for lung was quite variable in all farm analyzed whit values from 0 to 6. PRRSV resulted also positive in all farms with PMWS and it was also present in eight of other farms. Only one showed no presence of viruses. *Streptococcus suis, Pasteurella multocida, Haemophilus parasuis, Bordetella bronchiseptica, Salmonella tiphymurium* were isolated form several collected organs.

Discussion

Histology and immunohistochemistry are considered essential for PMWS diagnosis. In this field the lesion score could be useful to understand the evolution of the pathology within the farms. It is noteworthy that lesions with score 2-3 of lymphoid depletion and 1-2 of histiocytic inflammation were more frequently associated with immunohistochemical positivity. In our cases histiocytic inflammation resulted from low to moderate but not severe and the depletion appeared to be the most frequent lesion. The lungs showed a variable score, in fact we observed severe interstitial pneumonia in subject with no also confirmed PMWS , probably related to the diffuse infection of PRRSV as described previously. The results obtained from the analysed farms suggest to emphasize the role of PRRSV and the importance to keep it under control.

References

1. Allan G.M., Ellis E.J.: 2000.J Vet Diagn Invest 12:3–14
2. Chae C. (2004). Vet J, 168. 41-49.
3. Chae C. (2005). Vet J, 169. 326-336.
4. Opriessnig T., Thacker E.L., Yu S., Fenaux M., Meng X.-J., Halbur P.G. (2004). Vet Pathol 41:624–640.
5. G. Sarli, F. Ostanello, F. Morandi, L. Fusaro, M. Gnudi, B. Bacci, A. Nigrelli, L. Alborali, M. Dottori, F. Vezzoli, G. Barigazzi, L. Fiorentini, V. Sala, G. Leotti, F. Joisel (2009). Vet Rec. 164:519-23

This study was sponsored by Italian Ministry of Health within 2006 Research Program.