Sponsors

University of Minnesota
College of Veterinary Medicine

College of Agricultural, Food and Environmental Sciences

Extension Service

Swine Center

Editors
W. Christopher Scruton
Stephen Claas

Layout
David Brown

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

Cover Design
Shawn Welch

LESION AND DISTRIBUTION OF PRRS VIRUS IN EXPERIMENTALLY INOCULATED SWINE WITH THE CHILEAN ISOLATED, A PRELIMINARY STUDY.

E. Ramírez[1]; N. Dias[2], MV; A. Islas[1], MV, MSc; A. Ruiz[1*], MV, Ph D; and M. Quezada[1], MV, Dr. Vet

[1]Facultad de Medicina Veterinaria. Universidad de Concepción. Avda. Vicente Méndez 595. Chillán (Chile). [2]Subdepartamento Laboratorio Pecuario. Servicio Agrícola y Ganadero. Avda. Bulnes 140 (Chile).

PRRS, it is a swine viral disease that it was observed in 1987 in USA, and initially denominated mystery diseases. The virus produce important respiratory and reproductive problems those are responsible of important economic loss (Collins et al, 1992). The first diagnosis of the diseases in Chile was done by the end of 1999, in a routinely government control. Until today, they are very few studies of the Chilean isolated, especially about lesion characterization and virulence of the strain. However, it was identify as a North American strain.

American virulent strains can produce viremia at 12 hpi and animals can develop characteristic symptoms 3 to 5 dpi in gnotobiotic pigs. On the other hand, using Immunohistochemical technique, it was possible to detect the virus from bronchial epithelial cel, arterial endothelial cel, and lung macrophages from the 12 hpi, and the intensity and distribution of the reaction increase by 14 dpi in lung macrophages (Rossow et al, 1996).

The purpose of this study was to contribute to the diagnosis of the diseases in our country and characterize the antigen distribution in tissue using IHQ. In order to do that, 9 pigs were challenge intranasally with 7 ml, $10^{5.4}TCDI_{50}$, of the Chilean isolated and necropsy was done at 1/3 at 7, 14 and 21 dpi respectively. Additionally, 3 pigs were used as a negative control and necropsied at 21 dpi. Nasal mucosa, retropharyngeal node, tonsil, mediastinic lymphatic node, lung, liver, spleen, heart, thymus, boon marrow and alveolar macrophages smear from lung lavage were recollected at necropsy time. The samples were processed for IHQ using the monoclonal antibody SDOW-17 and the ABC complex method.

During the experiment, the animals presented conjunctivitis and periocular oedema, but the body temperature did not increase significantly. At necropsy time, the lymphatic node enlargement was only evident at 21 dpi. Histopathologically, depletion and apoptosis was observed in lymphoid follicles of lymphatic node, tonsil and spleen. Some animals present light meningitis. Interstitial Pneumonia was observed in the lung at the 3 necropsy times, and this increased over the time, with peribronchial and bronchiolar lymphohistiocitic infiltration.

PRRS virus was detected from 7 dpi by IHQ. The antigen was observed in alveolar, intravascular and interstitial macrophages, especially around the bronchia and bronchiole. Macrophages obtain from the lung lavage were positive by IHQ at the 3 necropsy time, and they were usually macrophages with small cytoplasm. Among the lymphatic tissue analyzed, the retropharyngeal and mediatinic lymph node showed few positive macrophages, which contrast with the large number observed in the tonsil and spleen.

The lesions and antigen detection by IHQ of experientially inoculated pigs with the Chilean isolated were similar to the ones described with North American strains (Rossow et al, 1996). However, in this study a less extensive distribution and fewer antigen was observed, with the exception of lung and spleen. Based in these results, lung and spleen should be more adequate for diagnostic purpose using IHQ or other antigen detection method under the Chilean condition.

References:

Collins JE, Benfield DA, Christianson WT, Harris L, Christopher-Hennings J, Shaw DP, Goyal SM, McCulluough S, Morrison RB, Joo HS, Gorcyca D, Chladek D. Isolation of swine infertility and respiratory syndrome virus in North America and experimental reproduction of the disease in gnotobiotic pigs. J Vet Diagn Invest **4**: 117-126, 1992.

Rossow K.D., Benfield D.A., Goyal S.M., Nelson E.A., Christopher-Hennings J., Collins J.E. Chronological Immunohistochemical detection and localization of Porcine Reproductive and Respiratory Syndrome Virus in gnotobiotic pigs. Vet. Pathol. **33**: 551-556, 1996.

Acknowledgements

This project was supported by a FONDECYT grants (CHILE) N° 1020217.