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STUDY OF INFETION AND TRANSMISIÓN CAPACITY OF THE PPRS VIRUS IN EXPERIMENTALLY INFECTED ANIMALS WITH THE CHILEAN ISOLATED: PRELIMINARY RESULTS OF THE VIROLOGIC STUDIES

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Introduction

Porcine Reproductive and Respiratory Syndrome (PRRS) is considered one of the most important diseases in swine production today, being responsible of important economic losses for the industry. The disease are widely distributed, being first diagnosed in Chile by the beginning of 2000, during a government routinely surveillance. At the present time, with a control and eradication program in place, it is necessary to understand how the Chilean isolated behave, main rout and phase of excretion, as well as the transmission to susceptible animals.

Material and Method

Thirty pigs, divide en six groups of five animals each were used. One group (G1) was infected intranasally and intramuscularly (2 and 1 mL respectively, $10^{5.4}TCDI_{50}$) with the Chilean isolated and blood samples for serology (ELISA, IDEXX®), RT-PCR and viral isolation were collected at 0, 3, 7, 11, 15, 19, 23, 27, 31 and 35 dpi. Other four groups (G2, G3, G4, G5) were used as a susceptible animals, being in contact with G1 between 3 to 7, 10 to 14, 17 to 21 and 24 to 28 dpi respectively. After this period, each groups keep for 7 days in a different isolation unit. Blood samples were collected at 0, 5 and 12 days post contact (dpc) for ELISA, RT-PCR and viral isolation. The last group (G6) was used as a negative control, maintained in a different isolation unit, and blood samples were collected at the same periods and for the same test than G1. Finally, animals from contact groups were sacrificed at 12 dpc and animals from G1 and G6 at 35 dpi.

Results and discussion

All pigs from G6 (negative control) were negative by ELISA, RT-PCR and viral isolation from all blood samples. Seroconversion was observed from 15 dpi in all challenge animals (G1), but in 3 pigs from G2, 1 pig from G3 and 2 pigs from G4 at 12 dpc. None of the pigs from G5 seroconverted.

The virus was detected from blood by RT-PCR in inoculated pigs (G1) from 3 dpi, all of them were virus positive between 7 to 15 dpi and negative between 19 to 27 dpi, but one animal was positive at 31 dpi. On the other hand, virus was detected by RT-PCR in 40% of the animals of G2 and G4 from 5 dpc, 40% of G3 at 12 dpc and 60% of G5 at 5 dpc.

The virus was isolated from 20% of the animals of group G1 at 3 dpi and 100% of them were positives between 7 to 19 dpi, after which period a decline in virus isolation was observed (80% positives at 23 dpi and 0% after that). On the other hand, virus isolation was possible only in animals from G2 and G3 at 5 and 12 dpc.

According to these results, it is possible to transmit the virus when animals are keep in direct contact for 5 days with inoculated animals with the Chilean isolated, but the infection is not simultaneous in all animals as showed RT-PCR and isolation results. Additionally, the results suggest that the viremia could be shorter (23 days approximately) than the observed with North American isolated, where it could last until 6 weeks.

The presence circulated antibody coincide with the literature description, who establish that the antibodies could be detected by ELISA from the 7 dpi, however, the length of this antibodies against the Chilean isolated is not determine yet.

This study, when all results are available and analyses, will also answer the question regarding to the excretion pick and the main rout of excretion and transmission of the Chilean isolated, valuable information as an epidemiological tool for the control and eradication programs

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