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A RECOMBINATION BETWEEN TWO GENOTYPE 1 PRRSV MODIFIED LIVE VACCINES RESULTS IN A FIELD STRAIN WITH INCREASED VIRULENCE

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Introduction

In Europe, modified live vaccines of genotype 1 (MLV1) are commonly used to control PRRSV infection in swine herds. In December 2014, following successive implementation of a PRRS vaccination program with VP-046BIS and DV strains in a farm, a recombinant strain from the 2 vaccines was isolated. In order to assess the virulence of the recombinant strain, we set-up an *in vivo* study to compare clinical, virological and transmission parameters with the 2 parental MLV1 strains.

Material & Methods

Three groups of 6 SPF piglets were respectively inoculated with one of the MLV1 or the recombinant strain. Twenty-four hours after inoculation, 6 contact piglets were added to each inoculated groups. All animals were monitored daily. Blood and nasal swabs were collected twice a week after inoculation to monitor the genome virus load. During necropsy, samples were collected for additional quantification of the viral genome in tissues.

Results

The vaccine and the recombinant strains did not induce clinical sign. PRRS viral load in inoculated piglets of recombinant group was higher in serum, nasal swabs and tonsils in comparison with piglets from vaccine groups. The first viremic contact animal was detected as soon as 2 dpi in the recombinant group compared to 10 dpi and 17 dpi for vaccine strain groups. Estimation of transmission parameters by mathematical modeling showed an instantaneous transmission rate (number of infected pigs by an infectious pig per day) of 0.57 for recombinant group against 0.08 and 0.11 for MLV1 groups.

Discussion & Conclusion

Our *in vivo* study showed that the recombinant strain was able to replicate at a higher level with a higher shedding and a faster transmission in comparison to the parental vaccine strains. These results suggest an increase of virulence of this strain resulting from the recombination of 2 attenuated PRRSV vaccine strains.