ASSESSMENT OF SAFETY OF A MODIFIED LIVE-VIRUS PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME (PRRS) GENOTYPE 1 VACCINE IN PREGNANT SOWS AT VARIOUS STAGES OF GESTATION.

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Introduction

Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) is considered to be one of the major pathogens in pigs and causes significant economic impact on the swine industry worldwide. PRRSV vaccination has been demonstrated as an effective tool to control clinical signs related to PRRSV infection. The aim of the present study was to evaluate field safety of PRRS genotype 1 modified live virus vaccine (PRRS 94881 MLV) in sows and gilts at various stages of gestation.

Materials and methods

The study was conducted in a piglet producing farm with 660 sows. On study day -1 (D-1) a total of 505 sows and gilts were included in the study. Sows and gilts were ear tagged and randomly allocated to group 1 (n=234) and group 2 (n=271). At the time of inclusion, 10% of sows and gilts from each study group were assigned at random as sample animals. The study groups were housed in separated barns with separate air spaces. Animals in both study groups were kept under similar conditions in terms of climate, ventilation, temperature and air humidity. On study day 0 sows of group 1 were vaccinated with 2mL of the Control product (CP), a commercial modified live PRRSV vaccine (PORCILIS PRRS® MSD Animal Health) according to the manufactures instructions. Sows of group 2 were administered intramuscularly with 2 mL of the Investigational Veterinary product (IVP), a modified live-virus PRRS genotype 1 vaccine (PRRS 94881 MLV). To prevent cross contamination between the two vaccination groups separation of housing was maintained for at least five weeks post vaccination. An individual examination for clinical signs was performed daily, starting the day before vaccination till D14. Clinical observation score included an assessment of behavior, respiratory signs and digestion. Additionally rectal temperatures were measured from sample animals on D-1, D0+1h, +4h to D14. Local reactions at the injection site were investigated from sample animals on study day 0, 1h and 4h post vaccination and subsequently on a daily basis up till 14 days post vaccination. Injection sites were examined for redness, swelling, heat and pain during palpation. Blood samples were collected from sample animals on D-1, D14, D28, D84 and D119 to determine viremia by using an in-house quantitative real-time PCR assay (qRT-PCR).

Results

Clinical observation revealed no significant differences between both study groups, regarding frequency and degree of the clinical signs behavior and respiration. Clinical signs regarding digestion were found to be significantly higher in the CP group (p=0.0034). Mean rectal temperatures post-treatment ranged from 38.0 °C to 38.9°C and from 37.9°C to 38.7°C for the CP and IVP groups, respectively. No significant differences per time point between groups were detected for rectal temperatures. Injection site reactions were noted to be significantly higher in the CP group compared to the IVP group for pain (p= 0.0393), redness (p=0.0299), heat (p= 0.0164) and swelling (p= 0.0019). The average duration of local reactions was 5.7 and 2.8 days in the CP and IVP groups, respectively. In case of swellings at the injection site the average swelling size was 4.4 and 2.5 cm for the CP and IVP groups, respectively. The maximum swelling size was reported with 20 cm in the CP group (severe score) and 8 cm in the IVP group (moderate score). All sow and gilt serum samples from sample animals were negative for the detection of PRRSV by qPCR at all scheduled time points during the study.

Discussion

Local or systemic reactions were less frequently observed in pigs receiving the IVP than in those receiving a registered PRRS vaccine, therefore supporting the field safety of PRRS 94881 MLV in sows and gilts at various stages of gestation.

References