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EFFICACY OF THREE COMMERCIAL LIVE VACCINES AGAINST PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS (PRRSV) IN WEANED PIGLETS

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Introduction

Vaccines against PRRSV are useful to: 1) reduce clinical signs, 2) improve zootechnical parameters and 3) decrease virus transmission. In the present study, the efficacy of three PRRSV1 live vaccines were compared in a PRRSV1 challenge model of weaned piglets.

Material and Methods

Sixty-four 4-week old piglets were distributed in four groups and intramuscularly vaccinated: A (Porcilis PRRS, MSD Animal Health); B (INGELVAC PRRSFLEX EU, Boehringer Ingelheim); C (UNISTRAIN PRRS, Hipra Laboratories); and D (unvaccinated). After 36 days, namely 0 post-infection (PI), animals were challenged (PRRSV1 strain 3267). Body temperature, clinical scores (respiratory signs, behavior) and body weight gains (BWG) were recorded. Viremia was quantified (qRT-PCR). Antibodies were measured by ELISA and by viral neutralization test (VNT) using the vaccine virus of each group. Cell-mediated immunity (CMI) were measured by ELISPOT IFN-γ.

Results

The lowest accumulated clinical score corresponded to group A (A=16; B=41; C=46 and D=47). Fever was transient with differences on days 2-3 PI (A<B=C=D; $p<0.05$). Differences in BWG were noticed during 14 days PI (A=6.39^{a}; B=4.21^{b}; C=4.96^{ab}; and D=5.01^{ab}; $p<0.05$) but disappeared afterwards. The area under the curve for the viremia was reduced significantly in vaccinated groups compared to controls ($p<0.05$). The highest ELISA S/P ratios were measured in C. On day 0 PI, the average VNT titers were different between groups (log_2 A=4.37^{a}; B=1.98^{b}; C=2.57^{ab}; $p<0.05$). CMI differences were observed between groups A and C (A=47.2 ± 17.9 > C= 31.4± 5.9 at day 0 PI, and A=35.0 ± 3.4 > C= 26.7 ± 12.2 at day 7 PI; $p<0.05$).

Conclusion

All three vaccines afforded partial protection against the heterologous challenge and although vaccine A provided better clinical protection, reduction of viremia was similar for all vaccines. The highest CMI was induced by A and B while VNT titers were highest in A and C.