THE MIXED ADMINISTRATION OF ERYSENG® PARVO AND UNISTRAIN® PRRS IN GILTS REDUCES VIRAEMIA AND VERTICAL/HORIZONTAL TRANSMISSION AFTER A HETEROLOGOUS PRRSV CHALLENGE

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INTRODUCTION

The aim of this study was to demonstrate that gilts vaccinated with a combination of ERYSENG® PARVO and UNISTRAIN® PRRS control viraemia better than non-vaccinated gilts after a heterologous challenge.

MATERIALS AND METHODS

Twenty six-month-old gilts, clinically healthy and free from antibodies against PPV, *E. rhusiopathiae* and PRRSV, were randomly assigned to a vaccinated group (n=10) and control group (n=10). Animals in the vaccinated group were vaccinated following the recommended protocol; they were immunised intramuscularly with ERYSENG® PARVO (2ml/dose) and revaccinated three weeks later with the combination of ERYSENG® PARVO and UNISTRAIN® PRRS (2ml/dose, the freeze-dried tablet of UNISTRAIN® PRRS was reconstituted with ERYSENG® PARVO). Vaccination and revaccination were done seven and four weeks before mating, respectively. Animals in the control group received PBS using the same strategy as the vaccinated group.

At ninety days of gestation, all the gilts were inoculated intranasally with 1 ml PAM culture lysate containing $10^{6.39}$ $CCID_{50}$ of a pathogenic PRRS strain. Serum samples were obtained post challenge (0, 3, 10 and 15 days post infection) and post-partum (after 0, 7 and 28 days of lactation). Evolution of viraemia after challenge and vertical and horizontal transmission to piglets were determined by RT-PCR and assessed using the $\chi 2$/Fisher test ($p<0.05$). The duration of viraemia was assessed using Mann-Whitney U test ($p<0.05$).

RESULTS

All the animals were negative to virus in sera after vaccination until challenge. After challenge, significant differences appeared in the number of viraemic animals between the vaccinated and control groups at days 3, 10 and 15 post infection and 0 post-partum. Viraemia was observed in all the non-vaccinated gilts whilst in the vaccinated group two gilts were positive in two independent samples (10 and 15 days post challenge). After partum, none of the vaccinated females was viraemic. Regarding the duration of viraemia after challenge, significant differences were observed (2.5 ± 1.7 days in the vaccinated group vs. 16.9 ± 2.7 in the control group).

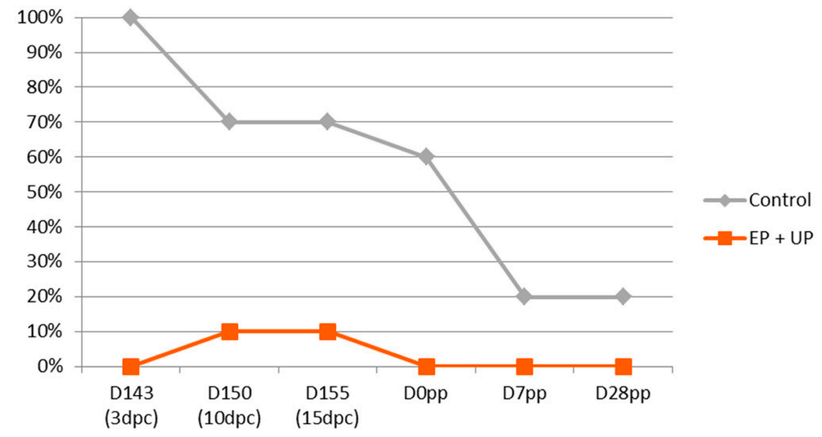

Figure 1. Development of viraemia after challenge.

Furthermore, vaccination significantly reduced the vertical transmission of the heterologous PRRSV to piglets detected at birth (6 % positive piglets born from the vaccinated group vs. 66 % from the control group, D0pp) and the horizontal transmission assessed at 28 days post-partum (0 % positive piglets from the vaccinated group vs. 51 % from the control group, D28pp).

Table 1. Virus incidence in the sera of gilts and piglets after the lactation period.

Group		D0pp	D28pp
Control	Positive gilts	6/10[a] (60%)	2/10 (20%)
	Positive piglets	60/91[a] (66%)	35/68[a] (51%)
	Positive litters	9/10[a] (90%)	9/10[a] (90%)
Vaccine	Positive gilts	0/10[b] (0%)	0/10 (0%)
	Positive piglets	7/111[b] (6%)	0/106[b] (0%)
	Positive litters	3/10[b] (30%)	0/10[b] (0%)

[a,b] Different superscripts indicate statistically significant differences between groups ($p<0.05$).

CONCLUSIONS AND DISCUSSION

Vaccination with the combined administration of ERYSENG® PARVO and UNISTRAIN® PRRS significantly reduced the percentage of viraemic gilts and the duration of viraemia in gilts after a heterologous PRRS infection. Also, the combined use of the vaccines reduced vertical and horizontal transmission to their piglets.

The results obtained allow the conclusion to be drawn that the efficacy in terms of viraemia after a PRRS challenge with the combined use of the two vaccines is comparable to that of UNISTRAIN® PRRS administered alone (1).

REFERENCES

1. Fenech et al. 2013. Proceedings ESPHM 2013, p. 192

esphm 2015 EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

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