Vaccine efficacy of combined PCV2 and M. hyo vaccines against PCV2 challenge under laboratory conditions

K. Kennedy[1], M. Eichmeyer[1], B. Fergen[1], B. Grosse Liesner[2]
[1]Boehringer Ingelheim Vetmedica Inc. St. Joseph, USA.; [2]Boehringer Ingelheim Animal Health GmbH, Ingelheim, Germany

INTRODUCTION

Vaccination against PCV2 and Mhyo has become a standard measure in the swine industry worldwide. The objective of this study was to compare the efficacy of a freshly mixed PCV2 and M hyo combination and a pre-manufactured PCV2/M hyo vaccine combination against a PCV2b challenge.

MATERIALS AND METHODS

The trial was conducted as a randomized, blinded vaccination-challenge efficacy study with 55 CDCD pigs. Animals were included at about 21 days of age vaccinated on D0, challenged with PCV2b on D14, and necropsied on D42. Five animals were kept as strict control group (non-vaccinated, non-challanged) 20 animals were not vaccinated and challenged on day 14 (challenge control group). 15 animals were vaccinated with FLEXcombo® (freshly mixed combination of Ingelvac CircoFLEX® and Ingelvac MycoFLEX® and challenged (Treatment group 1) and 15 animals were vaccinated with Foster PCV MH® and challenged on D14 (Treatment group2). Both products were used according to the manufacturer's instructions. After necropsy on day 42 animals were evaluated by three primary parameters: lymphoid depletion, inflammation of lymphoid tissues, and colonization of lymphoid tissues by PCV2. Individual weights were measured at animal inclusion, vaccination and challenge. Statistical comparisons for average lymphoid lesion scores were conducted among groups, and if significant (P<0.05), between groups using Friedman's test.

RESULTS

The average lymph node score for lymphoid depletion, inflammation and immune histochemestry was significantly higher in the challenge control animals than in treatment group 1 and 2. Also significant differences ($p < 0.014$) were observed between treatment group 1 and 2 with lower scores in treatment group one for all 3 parameters. The average daily weight gain from challenge to necropsy was 432 g in the control group, 435 g in treatment group 2 and 499 g in treatment group 1.

CONCLUSION

The results of this study indicate that both vaccine combinations were efficacious in the control of PCV2 after challenge with a PCV2b strain 2 weeks after vaccination when comparing them with the challenge control group. The results demonstrate that there are differences between the commercial PCV2/Mhyo vaccine combinations in terms of vaccine efficacy.

Table 1: Results of lymphoid lesion scores [mean score +/- SD]

	Control	Treatment group 1 (FLEXcombo®)	Treatment group 2 (Fostera PCV MH®)
n	20	15	15
Inflammation	1,48 ± 1,18[a]	0,02 ± 0,09[b]	0,67 ± 0,89[c]
Depletion	1,13 ± 1,21[a]	0,02 ± 0,09[b]	0,40 ± 0,81[c]
Immune histochemistry	1,17 ± 1,17[a]	0,02 ± 0,09[b]	0,49 ± 0,80[c]

Different letters (a, b and c) indicate significant (P < 0.05) difference among groups.

Table 2: Development of bodyweight [kg ± SD]

	day -1 (pre-vaccination)	day 13 (pre-challenge)	day 42 (day of necropsy)
Strict control	2.36 ± 0.17	4.24 ± 0.54	-
Challenge control	2.39 ± 0.31	4.79 ± 0.87	17.61 ± 4.28
Treatment group 1 (FLEXcombo®)	2.49 ± 0.37	4.86 ± 0.83	19.33 ± 3.41
Treatment group 2 (Fostera PCV MH®)	2.39 ± 0.44	4.56 ± 0.78	17.19 ± 3.00