Effects of two different Circovirus type 2 and *Mycoplasma hyopneumoniae* vaccine combinations on acute phase proteins in piglets

S. Figueras[1], A. Callén[1], C.Conill[1], I. Hernández[1], V. Rodríguez[1]
[1]Boehringer Ingelheim España S.A., Spain

ESPHM 2018 BARCELONA / SPAIN
10th EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

INTRODUCTION

Porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae (M.hyo)* play a primary role in the porcine respiratory disease complex, which continues to have a major economic impact on the global swine industry[1]. Acute phase proteins (APPs) have been proposed as suitable veterinary biomarkers to monitor welfare[2], and inflammatory response[3]. In addition, C-reactive protein (CRP) has recently been postulated as a potential biomarker use for vaccine safety studies[4] and the measurement of haptoglobin (Hp) may be an indicator of average daily weight gain (ADWG) in pig farms[5]. The aim of this study was to evaluate the response of piglets to vaccination with two different PCV2 and *M.hyo* vaccine combinations based on Hp, CRP and rectal temperature.

MATERIALS AND METHODS

Two groups of 22 piglets (11 males +11 females) were vaccinated, at 21 days old, with 1 mL of CircoFLEX® and with 1 mL of MycoFLEX® in a single injection of (A) 2 mL (FLEXcombo®; Boehringer Ingelheim, Spain, SA) or with a single injection (2 mL) of (B) Suvaxyn CIRCO+MH RTU® (Zoetis). Blood samples of each animal were taken before vaccination (basal levels), 24 h after vaccination (24 h Post-V) and 48 h after vaccination (48 h Post-V). The rectal temperature was recorded before and 8 h after immunization. Serum Hp and CRP concentrations were determined at 0,24 and 48 h after vaccination using an automatic biochemical analyzer (Olympus 2700, Germany). A two-ways ANOVA test was performed and a value of $P < 0.05$ was used to indicate significance.

RESULTS

In relation to baseline, HP serum concentrations (Fig. 1-a) increased significantly ($P < 0.001$) in both groups A and B at 24 h Post-V.
Regarding CRP concentrations (Fig. 1-b) this increase was observed at 24 h and 48 h.
In contrast, in group B both Hp and CRP concentrations were significant higher than group A.
8 h Post-V, rectal temperatures were significantly higher in the group B (39.18° C) ($P < 0.05$) compared to group A (38.40° C).

Figure 1.
Serum (a) Haptoglobin (Hp), (b) and C-reactive protein (CRP) concentrations in piglets vaccined with FLEXcombo® (group A; n = 22) or with Suvaxyn Circo-MH RTU (group B; n = 22) before of vaccination (Baseline), 24 h post-vaccination (24 h Post-V) and 48 h post-vaccination (48 h Post-V). The values are mean ± SEM. ****$P < 0.0001$, ***$P < 0.001$, **$P < 0.01$ compared with baseline value of each group. †$P < 0.05$ and ††$P < 0.01$ comparing between groups.

Fig. 1-a

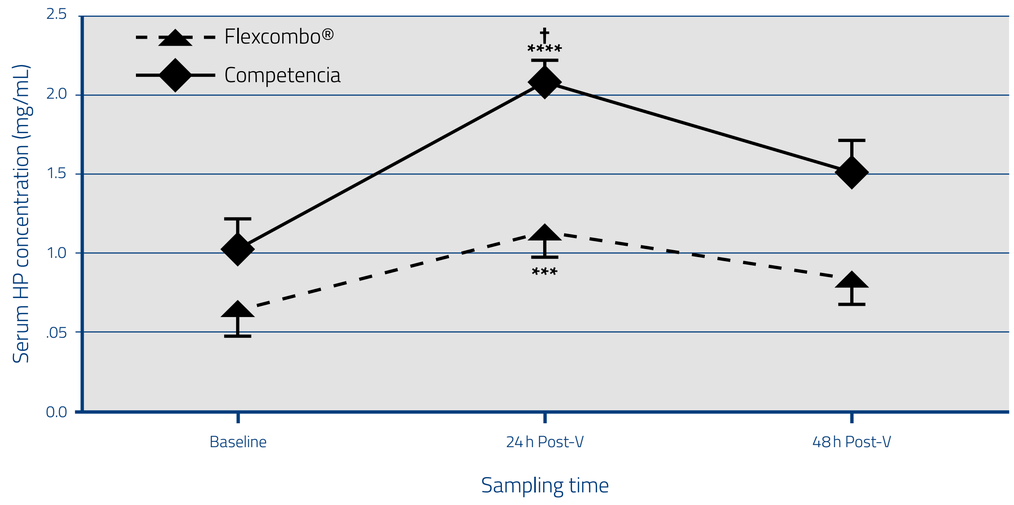
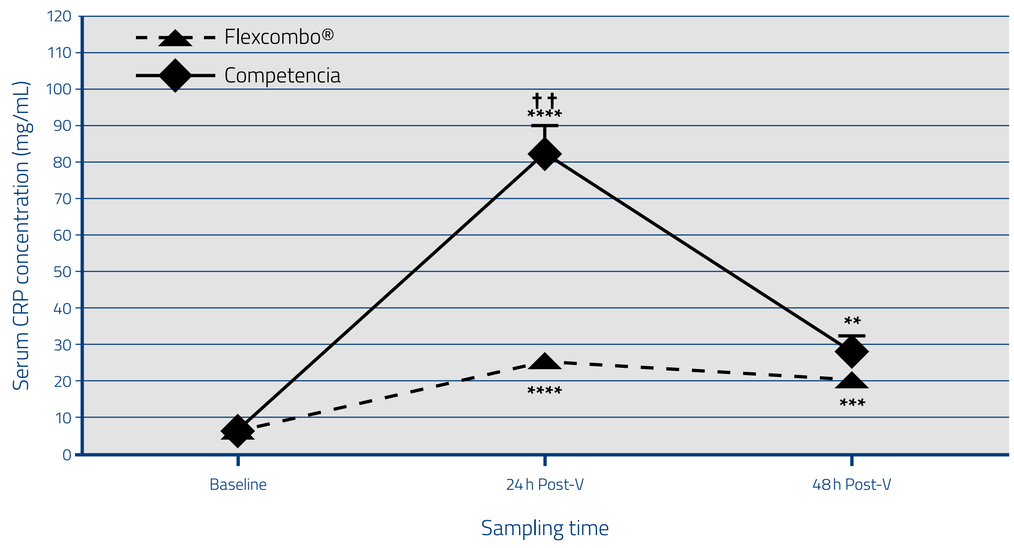


Fig. 1-b



CONCLUSION

According to the results obtained, the production of APPs has been higher and more persistent in animals of group B. In addition, this group had higher rectal temperature. Both observations indicate that these animals showed a greater inflammatory response upon vaccination and, therefore, a worse adaptation to weaning. This difference has been observed previously also in Iberian piglets[6].

REFERENCES

1. Kim et al. 2003. The Veterinary Journal 166, 251–256.
2. Murata, H. 2007. The veterinary Journal 173, 473-474.
3. Heegaard et al. 2011. Veterinary Research 17, 42-50.
4. Destexhe et al. 2013. Journal of Pharmacological and Toxicological Methods 68, 367-373.
5. Fraile et al. 2015. Porcine Health Management, 1:3.
6. Rodriguez-Vega et al. 2016. IPVS 2016 Proceedings p.418.