

ACUTE PHASE PROTEIN CONCENTRATION IN SERUM IS NOT AFFECTED BY TIAMULIN MEDICATION IN HEALTHY GROWING PIGS

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Introduction

The concentration of acute phase proteins (APP) in serum changes during the acute phase response to inflammation. An increase in basal APP concentration has been reported in response to experimental or natural infection in the early stages of the immune response. In fact, differences in APP serum levels have been found between high and low health status herds. Several studies have demonstrated that APP serum concentrations can be used as biomarkers to assess the health status of pigs and the efficacy of therapeutical treatments against several pathologies. Medicated early weaning is a common strategy for disease control in swine production and Francisco et al. (1996) have described increases in APP serum levels as a consequence of preventive medication with enrofloxacin and tiamulin in apparently healthy piglets.

Aim

To determine the effects of tiamulin administration on serum concentration of two APP (Pig Major Acute phase Protein; Pig-MAP and Haptoglobin; HPT) in healthy growing pigs from 74 to 116 d of age.

Material and Methods

A total of 132 pigs LW x LD (31.3 ± 0.22 kg BW; 74 d of age) were randomly divided into six groups with two sexes (males and females) and three therapeutical treatments (non-treated control group; tiamulin administration group, 50 ppm in diet; and injected tiamulin administration group; 162 mg for 5 consecutive days). Average daily gain (ADG), feed intake and feed:gain ratio were measured. Blood samples were obtained at day 0, 6, 12 and 28 of trial and the serum concentration of Pig-MAP and HPT was determined by radial immunodiffusion.

Results:

Performance: No signs of disease were observed throughout the experimental period. No differences (P>0.10) in productive performance traits were observed between treatments throughout the experiment. A treatment x sex interaction was observed for ADG (P<0.10) for the global period (74-116 d of age); males performed better than females in the non treated and orally treated pigs but not for injected pigs.

APP concentration: APP concentration was not affected by tiamulin medication through the experiment (table 1).

Table 1. APP concentrations (mg/mL) through the experiment (0, 6, 12 and 28 days of trial)

| | Pig-MAP, days | | | | HAPTOGLOBIN, days | | | |
|---------------------------|---------------|-------|-------|-------|-------------------|-------|-------|-------|
| | 0 | 6 | 12 | 28 | 0 | 6 | 12 | 28 |
| Control | 0.52 | 0.60 | 0.63 | 0.65 | 1.05 | 1.95 | 1.63 | 1.81 |
| <i>Oral treatment</i> | 0.70 | 0.73 | 0.74 | 0.71 | 1.52 | 1.44 | 1.55 | 1.46 |
| Injected treatment | 0.60 | 0.58 | 0.61 | 0.93 | 1.25 | 1.10 | 1.20 | 2.42 |
| SEM | 0.075 | 0.086 | 0.059 | 0.128 | 0.364 | 0.323 | 0.251 | 0.388 |
| P | NS | NS | NS | NS | NS | NS | NS | NS |

Conclusions

Tiamulin treatment, either oral or injected, of healthy growing pigs did not affect APP 's serum concentrations. The results suggest that both APP are good biomarkers of health or productive performance in pigs, independently of the use of this antibiotic.

Reference: Francisco CJ, Bane DP and Unverzagt L (1996). The effects of enrofloxacin and tiamulin on serum haptoglobin and a-1-acid glycoprotein concentrations in modified medicated-early-weaned pigs. *Swine Health and Production* 4: 113-117.