Efficacy of tylvalosin (Aivlosin®) in the control of proliferative enteropathy (PPE) in pigs experimentally infected with *Lawsonia intracellularis**

S.A. França[1], G.S. Machado[2], M. Blumer[3], R.M.C. Guedes[4]

[1] Faculdade de Castelo, Castelo; [2] Integrall – Soluções em Produção Animal, Belo Horizonte;
[3] Sanphar Química e Farmacêutica Ltda, São Paulo;
[4] Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Introduction

Porcine proliferative enteropathy (PPE), also known as ileitis, is an infectious enteric disease of growing-finishing pigs and other animal species worldwide. PPE is caused by the obligate intracellular bacterium *Lawsonia intracellularis* (Li)[1]. Control of PPE consists of the use of antibiotics given either in feed, water or parenterally. Recently a modified-live vaccine has become available.

Tylvalosin (TVN), the active ingredient in Aivlosin® products, is a macrolide antibiotic registered by ECO Animal Health. Tylvalosin has been used to treat and prevent PPE in the field; however, there are few published controlled studies confirming its efficacy. This paper describes a study conducted to evaluate the efficacy of tylvalosin incorporated in the feed at 50ppm as the tartrate salt (42.5ppm tylvalosin base) for 14 days for controlling PPE in pigs experimentally infected with *L. intracellularis*.

Study Design

Sixty healthy commercial crossbred five week-old piglets, purchased from a high health herd free of any confounding diseases, were brought to the research facility, weighed and ear tagged. The pigs were blocked by weight and then randomly allotted to one of two groups (T1, no medication plus *Li* challenge; T2, tylvalosin in the feed plus Li challenge), with five pens per group and six pigs per pen. Pigs in group T2 received medicated feed from the day before challenge until 13 days post challenge, when they received non-medicated feed.

All pigs were challenged intragastrically on day 0 with a mucosal homogenate containing 1.3 x 10^{10} L. intracellularis[2, 3]. Mortality, average daily gain (ADG), and average daily feed consumption (AFC) were monitored and faecal consistency was scored. Feed conversion ratios (FCR) were calculated (AFC/ADG). All pigs were euthanased 20 days after challenge and PPE characteristic lesion incidence, severity and length were evaluated. Ileum samples were collected for histology and immunohistochemistry (IHC). The parametric data were analysed using One-Way ANOVA and mean comparison by LSD (Least Statistical Difference) test, and non-parametric data by Kruskal-Wallis One-Way ANOVA.

Results and discussion

There was extensive diarrhoea in the un-medicated pigs and two had bloody diarrhoea from days 11 to 20. Performance differences between T1 and T2 are shown in Table 1. On day 20 T2 pigs were an average of 2 kg heavier than the non-medicated pigs and the ADG was 90 gm greater. T2 animals (medicated) had superior feed conversion efficiency to T1 (non-medicated) ($P<0.05$).

Table 1:
ADG, average feed consumption (AFC) and feed conversion ratio (FCR) of groups.

Group	ADG (kg)	AFC (gm)	FCR (AFC/ADG) (gm/kg)
T1(30)	0,451 ± 0,076[a]	862,0 ± 96,1[a]	1,932 ± 0,199[a]
T2(30)	0,541 ± 0,054[b]	896,4 ± 89,9[a]	1,656 ± 0,017[b]

NB different superscript letters indicate differences ($P<0.05$) among experimental groups.

The total intestine lesion length per group was 2,847 cm for T1 and 183cm for T2. Twenty-nine pigs (96.7%) in T1 were positive for Li antigen in ileum sections stained by IHC, while only 16 (53.3%) were positive in T2.
Thus Aivlosin® was responsible for a 94% reduction in total PPE lesion length, and an 84% reduction in Lawsonia infection as measured by IHC.

Conclusions

The efficacy of tylvalosin at an inclusion rate of 50 ppm TVN tartrate in feed for 14 days successfully controlled PPE infection resulting in significantly improved ADG and FCR compared to infected, untreated pigs (charts 1 and 2).

Chart 1:

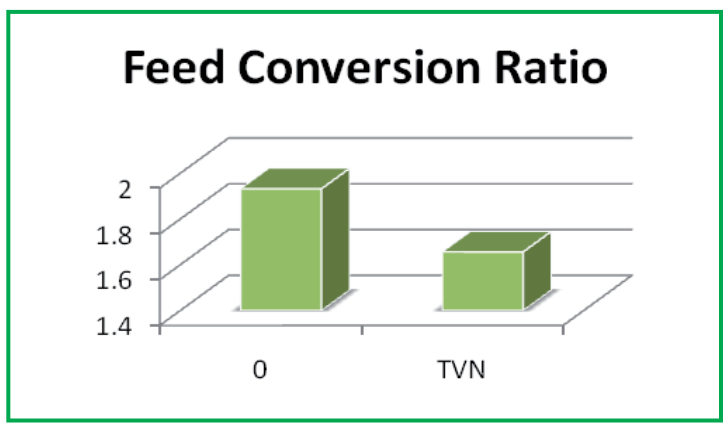
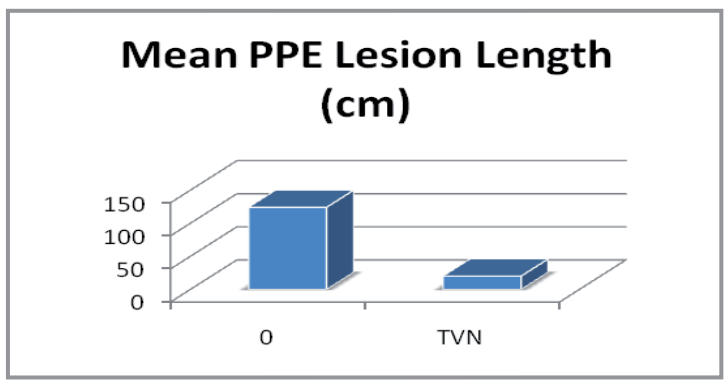


Chart 2:



*Excerpt of paper presented at IPVS meeting 2008

References: [1]D´Alaire, S, et al. (2006). Disease of Swine, 9th.
[2]Guedes et al, (2002). Can.J.Vet. Res. 66, 99-107
[3]Guedes, RMC, Gebhart, CJ (2003). Vet. Microbiol., 93, 159-166

AIVLOSIN®