

Proceedings of the



4-7 July **2000** – Valencia Spain

These proceedings were printed as a special issue of *WORLD RABBIT SCIENCE*, the journal of the World Rabbit Science Association, Volume 8, supplement 1

ISSN reference of this on line version is 2308-1910

(ISSN for all the on-line versions of the proceedings of the successive World Rabbit Congresses)

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Volume B, pages 195-198

MUCOID ENTEROPATHY: TREATMENT WITH APRAMYCIN OF NATURALLY INFECTED RABBITS

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INTRODUCTION

The mucoid enteropathy is an acute mortal disease of rabbits, characterised by signs of dehydration, bloating of the abdomen, and a gelatin like secretion in the faeces. Rabbits with 3-10 weeks of age are the most frequently affected animals. The actual disease is generally called Epizootic Rabbit Enterocolitis (ERE) and the cause is unknown, nevertheless earlier a number of organisms have been incriminated (CZIROK and VETESI, 1975; MESHORER, 1976; TARGOWSKI and TARGOWSKI, 1979), and it seems that rabbit mucoid enteritis is not a specific disease entity but a general response to the factors which cause impaction (SINKOVICS, 1976).

However, because Gram-negative microorganisms seem to be the predominant flora in the affected rabbits, Apramycin could be an effective antimicrobial against this idiopathic disease. Apramycin is an aminoglycoside (aminocyclitol) antibiotic, highly active against Gram-negative bacteria (WALTON, 1978), with a poor absorption rate when administered by oral route.

The aim of the present trial was to analyse the effect of the treatment with Apramycin in naturally affected rabbits with mucoid enteropathy, and to compare these results with those obtained in non-treated animals.

MATERIAL AND METHODS

Animals and animals' allocation

Sixty rabbits from a commercial rabbitry were used in the trial. These animals were allocated in 12 contiguous cages (5 rabbits per cage) at the beginning of the clinical signs of mucoid enteropathy. The rabbits had 4 weeks of age at the beginning of trial.

Treatments

The animals allocated in the first four cages (Treatment 1 or T1), drank tap water supplemented with 75 mg/l of Apramycin Sulphate (Girolan Polvo Hidrosoluble Oral[®]) during 14 days and were fed non-medicated feed.

The animals allocated in the second group of four cages (central allocation), drank non-supplemented tap water and were fed with non-medicated feed (Negative Control, Treatment 2 or **T2**).

Finally, the animals allocated in the third group of four cages (Treatment 3 or **T3**), drank non-supplemented tap water and received feed supplemented with 150 ppm of Apramycin Sulphate (Apralan Premix[®]).

Measured parameters

The body weights of animals allocated in each cage were measured at the beginning of the trial (Day 0), at the end of the first week of the trial (Day 7), and at the end of trial (Day 14).

Dead animals per cage were recorded every day.

The tap water supplemented with Apramycin, was freshly prepared every day all along the trial medication period. The daily water intake was measured for animals of Treatment 1. The amount of feed consumed and FCR/feed conversion rate were also calculated.

Statistical analysis

The parametric data (body weight, feed intake, and feed transformation rate), were analysed by ANOVA. The non-parametric data (mortality rate), were analysed by chi-square method.

RESULTS

At the beginning of the trial, all groups of rabbits were well balanced as regards to the average of body weight, with no statistical differences ($p > 0.05$) between treatments.

During the first week of trial, the statistical analysis of the feed transformation rates showed a significant difference between treatments ($p < 0.05$). Nevertheless, the body weight differences between day 0 and day 7 was non-significant. Finally, the mortality rates were statistically different ($p < 0.05$) between treatments. (Table 1)

Table 1: Weight gain, feed conversion rate and mortality

	Apram-water 75 mg/l	Control	Apram-feed 150 ppm	P
Body weight Day 0	0.84±0.07 Kg	0.71±0.07 Kg	0.76±0.11 Kg	NS
WG D0 to D7	0.20±0.01	0.16±0.05	0.26±0.08	NS
FCR D0-D7	2.30±0.14	1.67±0.21	1.61±0.12	p<0.05
Mortality % D0-D7	10.00±11.55	45.00±10.00	30.00±25.82	p<0.05
WG D7 to D14	0.29±0.08	0.20±0.06	0.27±0.11	NS
FCR D7-D14	2.38±0.31	3.10±0.65	2.65±0.30	NS
Mortality % D7-D14	5.00±10.00	8.33±16.67	8.33±16.67	NS

During the second week of the trial, the statistical analysis of the feed transformation rates showed a non-significant difference between. In addition, the body weight differences between day 7 and day 14 resulted non-significant ($p>0.05$). Finally, the mortality rates were statistically similar ($p>0.05$) between treatments.

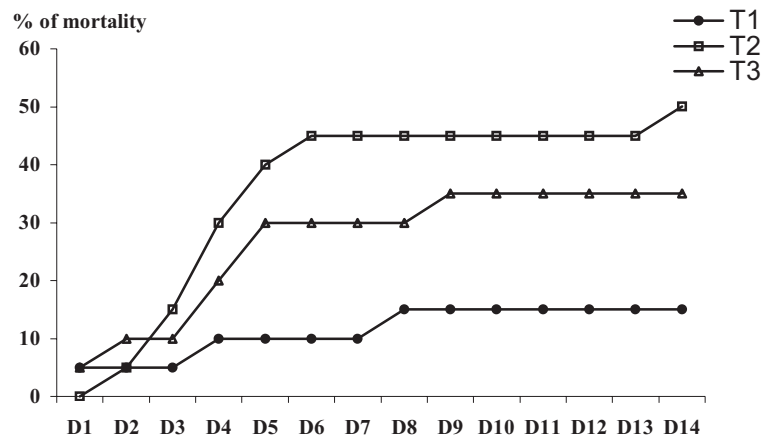


Figure 1. Accumulative mortality rate per treatment (T1: rabbits medicated in water at 75 mg/L of Apramycin, T2: non-medicated animals, and T3: rabbits medicated in feed at 150 ppm of Apramycin).

Figure 1 illustrates the accumulative mortality rate in each treatment group.

DISCUSSION AND CONCLUSIONS

After development of mucoid enteropathy or ERE, the mortality of rabbits could be controlled by the use of Apramycin Sulphate administered in drinking water at a final concentration of 75 mg of active principle per litre of water.

The difference in the mortality rate between rabbits medicated via water and rabbits medicated via feed, could be explained by the intake of Apramycin per animal in each group. During the first week of the trial, the animals medicated in water consumed 22.33 ± 3.55 mg of Apramycin/animal/day, and the animals medicated in feed consumed 11.48 ± 2.00 mg of Apramycin/animal/day. This represents a double intake of antibiotic in the water-medicated animals. During the second week of the trial, the antibiotic intake was similar in both medicated groups: 20.57 ± 2.02 mg of Apramycin/animal/day for animals included in Treatment 1, and 16.85 ± 2.55 mg of Apramycin/animal/day for rabbits included in Treatment 3.

Because sick animals reduce the feed intake, faster and at higher levels, than the water intake, the use of medicated water could be more effective than the use of medicated feed, when the clinical disease has begun.

Nevertheless, because the trial exposed in this paper was conducted to study the efficacy of Apramycin as therapeutic, it is not possible to discard the positive effect of feed supplemented with Apramycin on animals just before the beginning of clinical signs.

The Apramycin medication may be an efficient antimicrobial therapy that controls the imbalance of the intestinal microflora, which is the immediate cause of death in affected animals, and because that, Apramycin could be an efficacious treatment against the collateral adverse effects of mucoid enteropathy. This antimicrobial has the additional positive characteristic that it is not absorbed by the oral route, and, consequently, it does not generate meat residues.

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