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EPIZOOTIC RABBIT ENTEROCOLITIS AND COCCIDIOSIS: A CRIMINAL CONSPIRACY.

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EPIZOOTIC RABBIT ENTEROCOLITIS AND COCCIDIOSIS: A CRIMINAL CONSPIRACY.

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Summary

Specific Pathogen Free rabbits were inoculated simultaneously with epizootic rabbit enterocolitis and coccidia (*Eimeria media* + *Eimeria magna*). Groups were treated with Cycostat 66G (robenidine hydrochloride) and compared to non treated groups. Results shown an obvious synergy between ERE and coccidiosis, diarrhoea were serious and mortality was very high. The treatment against coccidia reduce both mortality and morbidity.

Introduction

The epizootic rabbit enterocolitis (ERE) is a new disease probably of viral origin (Lebas et al 1997-2000). Actual data show that lethal co-infections are very frequent. This trial was to evaluate an eventual synergetic effect of ERE and a coccidial experimental infection. Concurrently the efficacy of a commercial anticoccidial was tested.

Material and Methods

Experimental design

TAB 1 : Treatments (abbreviated name)

Treatments	Control Non inoculated	Inoculated ERE	Inoculated *Eimeria media* + *Eimeria magna*	Inoculated Coccidia + ERE
Non suppl. feed			3 (*Coc* nSup)	5 (CocERE nSup)
Suppl. feed (1)	1 (Tem Sup)	2 (ERE Sup)	4(*Coc* Sup)	6 (CocERE Sup)

(1) standard fattening diet used in intensive rabbit production + 66 ppm robenidine hydrochloride
. Each treatment includes 6 cages with 3 animals

Animals and housing

One hundred eight, 28-d old weanlings of the Institute's SPF strain (INRA 1077) were used for the trial. Out of each litter, 6 young were randomly distributed over the 6 experimental treatments. Before weaning, the young received the same diet as their mother without any drug. The repartition took place at the day of weaning (28 days). Control animals (treatment 1) were housed in a disinfected room (gaseous formaldehyde). Other animals were housed in a separate room which were previously used to study the ERE and not desinfected in view to have a contaminated environment. . Pelleted diets and drinking water were provided *ad libitum* during the experiment.

Inoculums

At weaning the animals were individually challenged *per os*. The inoculum used for ERE was

an intestinal content of a diseased animal. This technique reproduces systematically the disease and the obtained mortality is generally between 15 and 35% (Licois et al 2000). The coccidial infection was a mixture of *Eimeria media* (5000 oocystes) and of *Eimeria magna* (5000 oocystes) (Coudert et al. 1995)

Recordings

Rabbits were observed once daily for any clinical abnormalities. Individual body weights were registered at days –6, –3, 0, 4, 8, 11, 16, 21 (Day 0 = inoculation). All dead animals were autopsied.

Data were interpreted by a 1-factorial analysis of variance (treatment) using Systat 5.04 (Systat Inc USA). Means were compared with Tukey HSD test.

results and discussion

Regarding our previous trials concerning the study of ERE and coccidiosis, morbidity and mortality were higher as usual. Usually the inoculation of the two *Eimeria sp* (5000 oocystes) don't induce an high mortality (Coudert et al. 1995; Coudert et al. 2000). There is an obvious synergy between ERE and coccidiosis. Diarrhoea were very important and frequent, this is not observed neither with ERE nor with these two *Eimeria sp.* For the analyse of the results we have to take in consideration the high contagiousness of ERE which explained that after 8 to 10 days we have to consider that all animals are contaminated with ERE. Only control animals in the isolated room remain healthy.

Study of Mortality

In the group inoculated only with ERE (ERE Sup) (Fig 1) mortality occurred mainly between D 0 and D11 and was significantly lower than in all other treatment groups (c^2 : 7%). This means that coccidia aggravated ERE

Groups inoculated but not supplemented (Coc nSup, Coc ERE nSup) had a similar evolution during the two first weeks (period of coccidiosis) with slightly more mortality in the group inoculated with both diseases (Coc ERE nSup). Later, the mortality continues in the groups non inoculated with ERE (Coc nSup, Coc Sup) and it is probably the result of a spontaneous contamination with ERE.

The feed supplemented with Cycostat 66G was efficacious in the group inoculated with coccidia (Coc Sup) during the acute phase of coccidiosis (D4 to D11). In the group inoculated with both diseases (Coc ERE Sup) the supplemented feed didn't reduce the mortality during the first period but mortality was stopped after D11 while it continued in the non supplemented group (Coc ERE nSup).

Study of weight gain of the remaining animals (living at D71)) (Fig 2)

The control group had a very good growth, significantly higher than all other groups ($P<0,001$).

The average body weight gain (abwg)of living animals inoculated with only ERE and supplemented with Cycostat 66G (ERE Sup, n=10) was not significantly different of control group ($F<0$) up to D8 but fell down between D8 an D11.

During the acute phase of coccidiosis (D0-D8) the Abwg of inoculated but non supplemented animals (Coc nSup, n=3, Coc ERE nSup, n=7) was significantly lower than That of the supplemented groups (Coc Sup, n=7, Coc ERE Sup, n=6)

Figure 1 : Cumulated mortality of animals inoculated with coccidia + ERE and supplemented with Cycostat 66G

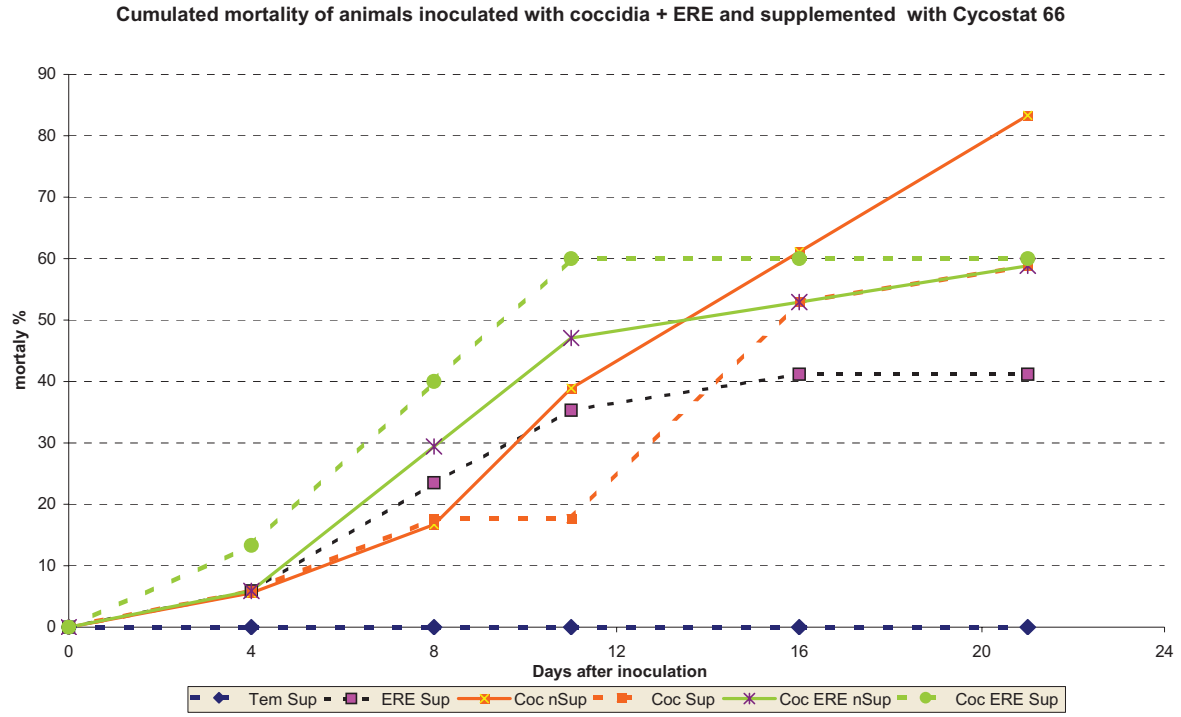

Figure 2 Average body weight gain of animals inoculated with coccidia + ERE and

Conclusion

This trial shows that a coccidial co-infection (*Eimeria media* , *Eimeria magna*) even at a low challenge dose aggravates the symptoms caused by ERE resulting in higher mortality and in low growth. The use of an anticoccidial in the feed (Cycostat 66G) significantly decreased final mortality and loss in average body weigh gain .

We have to consider that the infection of ERE was very severe in this trial because, not only animals were experimentally inoculated but they were housed in contaminated facilities. It can be assumed that with a more moderated infection of ERE the positive effect of anticoccidial would be more pronounced.

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