

**THE THERAPEUTIC VALUE OF OXYTETRACYCLINE
HYDROCHLORIDE (TERRAMYCIN) IN CATTLE
INFECTED EXPERIMENTALLY WITH *THEILERIA
ANNULATA* (*)**

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SUMMARY

The therapeutic effect of Terramycin in cattle experimentally infected with Theileria annulata was studied. Medication attempts were made at three phases during the incubation period, at the beginning of the clinical syndrome and at the height of parasitaemia and fever. It was concluded that Terramycin had no therapeutic value in the treatment of theileriasis of this type.

INTRODUCTION

Cordier and Gayot (1954) demonstrated that after injection of Aureomycin into animals infected with *Theileria annulata*, a reduction of fever occurred but that this was temporary and the body temperature rose again. They concluded that Aureomycin had no real effect on *T. annulata*. Gayot (1957), believed that Chloramphenicol did not act specifically against theileriasis due to *T. annulata*. Brocklesby and Bailey (1962), studied the effect of Terramycin on *T. parva* and concluded that Terramycin failed to cure established cases of the disease when treatment was commenced on the first day of fever. These authors, however, stated that "Terramycin suppressed the development of East Coast fever if daily treatment was continued for a period of 28 days from the first day of experimental infection". Jones (1971), stated that there might be some advantage in using a combination of Terramycin and Chloroquine in the treatment of East Coast fever. However, as Terramycin had been reputed to modify the course of theileriasis we were interested to study its therapeutic effect on the disease as caused by *T. annulata*.

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MATERIALS AND METHODS

Twenty-one strains of *T. annulata* with differing levels of virulence have so far been isolated locally. One of the most virulent of these strains, S.3 was used throughout this experiment.

The susceptible calves were either Holstein or Sarabi (a local breed). Their respective mortality rates with S.3 are usually estimated at about 80 and 30 per cent.

Terramycin was administered in a sterile injectable solution of propylene glycol and water containing 50 mg of oxytetracycline hydrochloride per ml.

A total of 19 calves, 16 Holsteins and three Sarabi, were all inoculated subcutaneously with S.3 and were then divided into four groups.

Group A, consisting of three Holsteins and one Sarabi, were treated during the incubation period. Daily injection of Terramycin (12 mg/kg liveweight) was commenced in the Holsteins on the same day as the infective inoculation and on the fourth day after the infective inoculation in the Sarabi. Treatment continued until one day after the appearance of the parasite and the fever.

Group B, consisting of five Holsteins, was treated at the beginning of patent disease. Terramycin (12 mg/kg liveweight) was administered for 5 days following the appearance of parasites and fever.

Group C, consisting of four Holsteins and one Sarabi, was treated at the peak of reactions. Terramycin (12 mg/kg liveweight) was administered on four successive days, commencing on the day in which fever and parasites were at their highest levels.

Group D, consisting of four Holsteins and one Sarabi, remained as untreated controls.

A full clinical examination was conducted daily. Rectal temperatures were recorded twice daily. Geimsa-stained preparations of lymph node and liver biopsies were examined microscopically throughout the experiment. Autopsies were carried out on all animals which died during the experiment and smears were made of blood, lymph nodes, spleen, liver, kidney, lung and also of abomasal lesions. These smears were stained with Geimsa and examined microscopically.

RESULTS

In Group A, two Holsteins presented fairly mild theilerial reactions. The remaining Holstein and the Sarabi presented severe theilerial reactions. All four animals recovered.

in Group B, all five calves suffered an acute, fatal theilerial reaction.

In Group C, three Holsteins and one Sarabi died after developing clinical theileriasis. One Holstein recovered from a severe theilerial reaction.

In Group D, all five animals developed clinical theileriasis, which proved fatal in three of the Holsteins. The remaining Holstein and the Sarabi recovered.

DISCUSSION

All evidence confirmed that an acute theileriasis was produced in the untreated control calves (Group D).

The calves treated at the beginning of patent disease (Group B) and at the peak of reactions (Group C) showed clinical reactions and high levels of parasitism which were indistinguishable from the typical theileriasis as seen in the control calves.

The development of theileriasis in the calves treated during the incubation period (Group A) was fairly suppressed. Compared with the control group, the incubation period was longer, the duration of fever shorter and the numbers of shizonts fewer. The value of this method in modifying the course of theileriasis is, however, reduced by the unlikelihood of treatment being commenced before an appreciation of patent disease.

The 100 per cent mortality rate in Group B confirmed that Terramycin was ineffective in the treatment of theileriasis. As the number of recoveries in Group C corresponded to the number of recoveries in the control group, it is obvious that these recoveries cannot be ascribed to treatment. Indeed, comparing the clinical reactions and the mortality rates in the treated animals with those in the controls, it can be concluded that Terramycin had no therapeutic effect in the circumstances of this experiment.

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LA VALEUR THERAPEUTIQUE DU CHLORURE D'OXYTERACYCLINE
(TERRAMYCINE) CHEZ LE BETAIL EXPERIMENTALEMENT INFESTE PAR
THEILERIA ANNULATA

Résumé—Les effets thérapeutiques de la Terramycine chez du bétail expérimentalement infesté par *T. annulata* sont étudiés.

Les essais médicamenteux ont été effectués à trois phases de la maladie: durant la période d'incubation, au début du syndrome clinique et à l'acmé de la parasitémie et de la fièvre.

On a conclu que la Terramycine n'a aucune valeur thérapeutique dans la Theileriose de ce type.