

EFFICACY OF LONG - ACTING OXYTETRACYCLINE ON BOVINE ANAPLASMOSIS

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Uzun süre etkili oksitetrasiklinin sığır anaplasmosisi üzerine etkisi

Özet: Ankara Üniversitesi Veteriner Fakültesi Çiftliğinde 4 inek ve 13 tosunu anaplasmosis teşhisi kondu. Bunların 8 tanesi tipik anaplasmosis semptomları gösterirken (Grup I), diğerleri *A. marginale* taşıyıcısı olarak belirlendi (Grup II). Grup I'deki hayvanlara uzun süre etkili oksitetrasiklin kas içi yolla (20 mg/kg) 3 gün aralıklarla 3 kez enjekte edildi. Grup II'ye aynı preparat aynı yolla 2 kez enjekte edildi. Uzun süre etkili oksitetrasiklinin hem akut anaplasmosisin önlenmesinde hem taşıyıcı anaplasmosisin eliminasyonunda başarılı bir şekilde kullanılabileceği tesbit edildi.

Summary: Anaplasmosis was diagnosed in 4 cows and 13 young bulls belonging to the Farm of the Faculty of Veterinary Medicine of Ankara University, while 8 of them revealed typical symptoms of acute anaplasmosis (Group I), the others were identified as *A. marginale* carriers (Group II). Three injections of long-acting oxytetracycline were administered intramuscularly (20 mg/kg) at 3-day intervals to Group I. Two injections of the same preparation were administered in the same manner to Group II. It was concluded that long-acting oxytetracycline could be used successfully in both preventing acute anaplasmosis and eliminating carrier state of anaplasmosis.

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Introduction

Prior to the development of tetracyclines, many chemotherapeutic compounds, such as arsenicals, antimalarials, antimony derivatives and dyes had been used to treat acute anaplasmosis(2).

Three new compounds, Glaxozone, Imidocard and Diminazone have been described as having a specific chemotherapeutic effect on *Anaplasma* (1, 5). However these drugs are not approved as yet for commercial distribution and consequently are available for experimental studies only. Currently, treatment programs for anaplasmosis have centered around the use of tetracyclines which are the only antibiotics approved for use in food animals (3).

Recently a long-acting oxytetracycline (containing 200 mg/ml) became available and this maintains a sustained plasma level for 3-5 day (4, 6-8).

The aim of this study was to evaluate the effect of longacting oxytetracycline treatment on both acute and carrier state of bovine anaplasmosis.

Materials and Methods

This study was conducted in a herd belonging to the Farm of the Faculty of Veterinary Medicine of Ankara University.

Initially, anaplasmosis was diagnosed in 4 Holstein Friesian cows and 4 Holstein Friesian young bulls with typical sign (Group I). *Anaplasma* bodies (*A. marginale*) were observed in erythrocytes of stained blood films.

Clinical examinations of 9 Holstein Friesian young bulls revealed no abnormalities. They were in apparent good health but anaplasma bodies were observed in erythrocytes of stained blood films. These young bulls were identified as *A. marginale* carriers (Group II). The rectal temperature, packed cell volume (PCV) and parasitemia values were determined on each animal in both Group I and Group II. Parasitemia was measured microscopically by counting the percentage of parasitised cells. The animals were weighed just before treatment in order to establish the proper dosage of drug for each animal.

Three injections of long-acting oxtetracycline were administered intramuscularly (20 mg/kg) at 3-day intervals to Group I. Two injections of the same preparation were administered in the same manner to Group II.

Blood samples for the determination of PCV and parasitemia were collected and clinical examinations of the animals were carried out at 10, 25, 40 and 60 days after treatment.

Results

The averages of PCV parasitemia and rectal temperature values of Group I and II at 10, 25, 40 and 60 days after treatment are shown in Fig. 1. One cow exhibited a minimum PCV of 6 %, dyspnea, icterus and recumbency for 12 hours and died after 2 days of treatment.

Before treatment, parasitemia in Groups I (n: 8) was between 9 % and 11 %, Group II (n: 9) had a parasitemia of 3 to 5 %. Para-

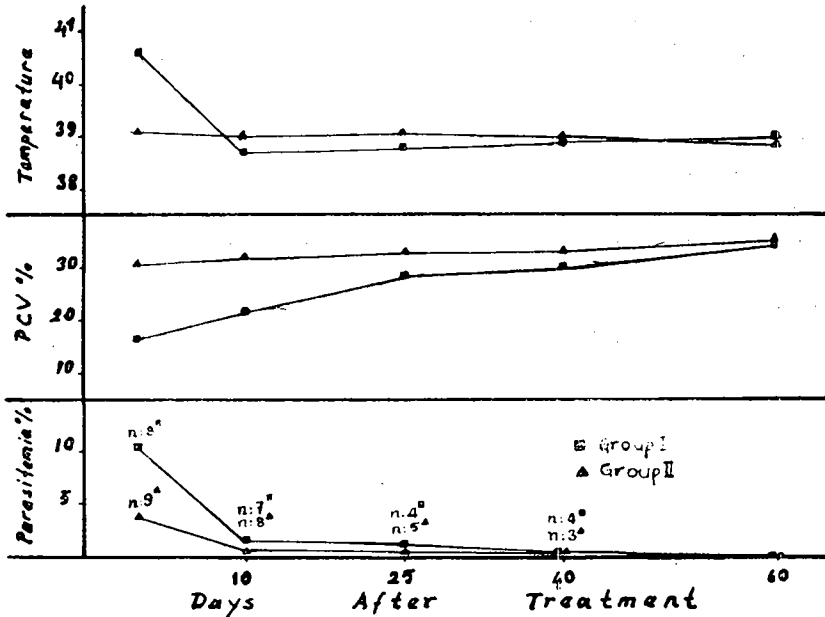


Figure 1: Results of parasitemia, PCV and rectal temperature measurements of group I and II during the period of 60 days after treatment.

Şekil 1: I. ve II. grup hayvanların tedaviden sonraki 60 gün içerisinde Parasitemi, PCV ve rektal ısı ölçümleri sonuçları.

sitemia in Group I and II was significantly reduced to 1.4 % and 0.24 % at day 10 of treatment, respectively, Anaplasma bodies were observed in 4 animals (0,06 %) of Group I and in 3 animals (0,1 %) of Group II at day 40 of treatment. By day 60, no anaplasma bodies were observed in both Group I and II.

At no time did any of treated animals become critically ill. There was no marked discomfort or local inflammation after injection of the drug formulation.

The long-acting formulation of oxtetracycline (200 mg/kg) was found to be effective in both preventing acute anaplasmosis and eliminating the carrier state of anaplasmosis.

Discussion

Acute and carrier state of anaplasmosis have been cured with long-acting oxytetracycline (4, 6-8), although these experimental findings have not been confirmed by field trials. The result of this study showed that long-acting oxtetracycline could be used successfully in the treatment of bovine anaplasmosis in field trials.

While the successful use of 3 and 4 injections of long-acting oxytetracycline have been reported in bovine anaplasmosis (7), one dose of long-acting oxytetracycline did not sterilise infection (8). As a result of this study, the use of 3 intramuscular injections of long-acting oxtetracycline at 3-day intervals in acute anaplasmosis and 2 intramuscular injections of the same preparation in carrier state of anaplasmosis were found to be effective. Long-acting oxtetracycline supplied fewer management and cow-handling difficulties and caused less stress to the animals.

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