

THE ACTION OF OXAMNIQUINE ON *LEISHMANIA BRAZILIENSIS* *BRAZILIENSIS* IN HAMSTERS

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SUMMARY

Oxamniquine (6-hydroxymethyl-2-isopropylaminomethyl-7-nitro-1,2,3,4-tetrahydroquinoline) shows activity against *Leishmania braziliensis braziliensis* in hamsters. Both marked regression of nasal lesions and reduction of parasitaemia were observed in treated animals as compared with controls.

INTRODUCTION

Oxamniquine (6-hydroxymethyl-2-isopropylaminomethyl-7-nitro-1,2,3,4-tetrahydroquinoline) shows high therapeutic activity against *Schistosoma mansoni* infections, being considerably (5-10 times) more active than niridazole [1-(5-nitro-2-thiazolyl)-2-imidazolidone] (FOSTER²). Niridazole is itself active *in vitro* against *Leishmania braziliensis* (LIMA et al.³), and this fact led us to make a preliminary study of the action of oxamniquine on experimental cutaneous leishmaniasis.

MATERIALS AND METHODS

Infection of Animals

The inoculum was prepared from nasal lesions of hamsters previously infected with *Leishmania braziliensis braziliensis* (strain no. 100, Instituto de Endemias Rurais, Belo Horizonte, isolated in 1972 from a human case in Minas Gerais). A fragment of nasal tissue was homogenized in a tissue grinder with saline containing 200 IU/ml penicillin and 50 mg/ml streptomycin, and then kept in the refrigerator for 24 h. Ten hamsters were inoculated subcutaneously in the nose with 0.1 ml of suspension. The animals were maintained at 22-24°C (BRAZIL et al.¹).

Treatment

Commencing 40 days after infection 5 animals were separated and treated intraperitoneally with oxamniquine in propyleneglycol receiving 5 doses of 100 mg/kg at 7 day intervals. Therapeutic activity was estimated by comparison of the treated group with the 5 remaining animals which served as controls (NEAL^{4,5}). The number of parasites present was determined at the end of the experiment.

RESULTS

The treated group exhibited a strong regression of the lesion towards the end of the treatment period (Table I). However 41 days after the end of treatment (day 109) smears made with tissue from the inoculation site were positive for amastigotes, with the exception of one animal. The average parasite count for treated animals at this point was 14.1 leishmanias per 100 cell nuclei, while control animals exhibited an average of 77.5 leishmanias per 100 cell nuclei.

DISCUSSION

The results obtained in this preliminary investigation show that oxamniquine is active against *L. braziliensis braziliensis* in hams-

TABLE I

The action of oxamniquine on *L. braziliensis braziliensis* in hamsters

	Treated	Controls
No. of animals	5	5
Dead animals	0	1
Dose mg/kg	100 × 5	—
Dose interval days	7	—
Days after infection a	Neal's lesion index ^{4, 5}	
40	3.6	3.2
47	3.6	3.4
54	3.4	3.5
61	3.2	3.7
68 ^b	2.4	3.7
75	1.4	4.0
109	1.0 ^c	4.0

a Treatment begun on day 40. Neal's index: 0, no thickening of skin; 1, slight thickening of skin; 2, definite thickening of skin; 3, large area of thickening or nodule measuring 5mm or less in diameter; 4, area of thickening or nodule measuring more than 5mm in diameter.

b Treatment terminated

c Corresponds to a drug of activity II on NEAL'S^{4, 5} scale

ters. A detailed study of the action of the drug against the various species and subspecies of *Leishmania* which cause human disease is justified.

RESUMO

Ação da oxamniquine sobre a Leishmania braziliensis braziliensis em hamsters

Oxamniquine (6-hidroximetil-2-isopropilaminometil-7-nitro-1,2,3,4-tetrahydroquinolina)

demonstrou atividade contra *L. braziliensis braziliensis* em hamsters, sendo observadas tanto a regressão nítida das lesões como uma redução acentuada dos amastigotas presentes nos animais tratados em comparação com os controles.

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