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THE RABBIT AS A LABORATORY ANIMAL FOR STUDIES ON CHAGAS'DISEASE (*)

RESEARCH NOTE

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Studies on the immuno-pathological processes involved in the development of chronic Chagas'disease have been seriously handicapped by the failure to find a suitable laboratory animal in which the course of infection closely mirrors the evolution of the human disease. Acute and/or chronic conditions can be obtained in white mice and rats and certain other convenient laboratory animals, but the pathological conditions produced do not exactly agree with the disease forms found in man. For example, none of the laboratory animals in common use develop fibrotic myocarditis, megaesophagus or megacolon, three conditions that frequently characterize chronic human infections.

TEIXEIRA et al. (1975)[1] reported results that suggest that the rabbit could be a useful experimental model for immunomorphological studies on the mechanisms involved in the production of local and general reactions that develop in the long period of evolution of chronic Chagas'disease. They found that rabbits developed lesions characteristic of human chronic Chagas'disease when they inoculated the animals intraperitoneally (with 10,000 trypanosomes per gram of body weight) with parasites of strain "Ernestina" that had been grown in tissue culture. The inoculated rabbits developed infections similar to those found in chronic human cases, including myocarditis and megacolon.

To examine the usefulness of rabbits as laboratory models for chronic human Chagas'disease, we have carried out a series of experiments in which rabbits were infected with **Trypanosoma cruzi** strains previously maintained in experimentally infected laboratory white mice. We tested the infectivity of three strains: "Y", "CL" and "MR".

Experiments were carried out on 23 young male New Zealand rabbits weighing 1,000 - 1,250 gm and infected with 5,000 - 10,000 trypomastigotes per gram of body weight. The animals were infected intraperitoneally (Group A), intravenouslly (Group B) or subcutaneously (Group C).

Blood cultures in "LIT" (Liver infusion tryptose) medium were prepared 35 days after the rabbits had been infected. All cultures were negative when they were examined 15, 30, 45 and 60 days later. Two rabbits inoculated with strain Y and two infected with strain CL were sacrificed 35 days after they had received trypomastigotes. None of the four animals had obvious macroscopic lesions in the different organs examined. Histological examination of these organs revealed lesions of an inflammatory nature, but such lesions were extremely small and probably were not induced by the very few tissue parasites that were observed.

The remaining 19 rabbits have been maintained up to the time of writing, six months after inoculation. No one has developed signs comparable with those that occur in chronic human Chagas'disease.

The course of trypanosomiasis in rabbits inoculated with blood forms of **T. cruzi** derived of experimentally infected laboratory white mice is quite different from the consistent results obtained when white mice, white rats and guinea pigs are inoculated with the same dosages of the same strains by the same routes of infection. In view of the results obtained, we doubt that rabbits can serve as a useful model

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for chronic human Chagas'disease, though this conclusion may only apply to strains "Y", "CL" and "MR" of the parasite.

REFERENCE

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