

ABSTRACT

Laboratory and field studies were done on the Jamaican strain of human Strongyloides. In the laboratory, optimal conditions for propagation of the free-living cycle were investigated. The mongrel puppy was employed as a model for the exploration of various aspects of host-strongyloid relationships. The histological reaction of normal skin to penetrating larvae, and of sensitised skin to larvae, excretory-secretory ("ES") and somatic ("S") antigen, was determined. Enzymatic activities of filariform larvae were assayed in vitro. Several factors predisposing to autoinfection were examined. The anthelmintic activity of levamisole and thiabendazole was compared. In the field, a follow-up study was done and pilot surveys for prevalence were conducted throughout Jamaica in areas contrasting in climatic and physiographic features.

The results indicated that optimal conditions for the propagation of the heterogonic cycle existed at a temperature range of 26°C to 30°C, a pH range of 7.5 to 8.0, and a stool consistency equal to that of a very thick paste. The reaction of normal skin to invading larvae was essentially a non-specific, acute inflammatory response; with sensitised skin, there was significant degranulation of mast cells in the presence of

larvae, "ES" and "S" antigen. Collagenase, gelatinase, fibrinase, lipase and hyaluronidase activity of filariform larvae were demonstrated. Autoinfection was experimentally induced by constipation, by vincristine therapy, by ileal ligation and by simulation of ileal volvulus. A general hypothesis was advanced to explain the etiology of autoinfection. Levamisole possessed statistically significantly greater anthelmintic activity than thiabendazole against Strongyloides in vitro, but not in vivo in puppies. It was unable to eradicate the parasite completely from the stools of five out of six infected patients. Preliminary data suggest that the chronicity of strongyloidiasis in Jamaican patients is due to internal autoinfection rather than external reinfection. The prevalence of the infection in the general population is very low (30 out of 1,555 persons positive, or 1.9%).