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RE-EVALUATION OF SCHISTOSOMIASIS MANSONI IN MINAS GERAIS, BRAZIL. III. "NOROESTE DE MINAS" MESOREGION

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SUMMARY

This study was conducted to assess the presence of schistosomiasis mansoni in the "Noroeste de Minas" mesoregion, an area considered non-endemic. A malacologic survey and parasitologic stool examinations were undertaken in 13 municipalities of the mesoregion. A sample of 3,283 primary school students was submitted to fecal examination by the Kato-Katz method. A total of 3,627 planorbids was collected and examined. The molluscs were identified as *Biomphalaria straminea* in seven municipalities (Unaí, Bonfinópolis de Minas, Paracatu, João Pinheiro, Vazante, Lagamar and Lagoa Grande) and as *Biomphalaria peregrina* in one (Presidente Olegário). All planorbids were negative for *Schistosoma mansoni*. Four students were diagnosed with schistosomiasis in the municipalities of Buritis, Formoso, Paracatu and Unaí, but none of these cases was considered autochthonous. The data obtained indicate that the "Noroeste de Minas" mesoregion continues to be non-endemic for schistosomiasis mansoni, although the presence of intermediate hosts associated with parasitized individuals emphasizes the need for epidemiological surveillance of schistosomiasis in this mesoregion.

KEYWORDS: Schistosomiasis mansoni; area free of schistosomiasis; "Noroeste de Minas" mesoregion; *Biomphalaria straminea*; *Biomphalaria peregrina*; Minas Gerais; Brasil

INTRODUCTION

The areas with the highest prevalences of schistosomiasis mansoni in Minas Gerais state are located east of the São Francisco river - "Norte de Minas", "Jequitinhonha", "Vale do Mucuri", "Vale do Rio Doce" and "Metropolitana de Belo Horizonte" mesoregions. In contrast, the "Noroeste de Minas", "Sul/Sudoeste de Minas", "Triângulo Mineiro" and "Alto Paranaíba" mesoregions show little or no prevalence.

During the 1980s, three new foci of schistosomiasis were described in the state of Minas Gerais[1,2,5] in areas previously considered free of the disease. As a consequence of these observations the "Triângulo Mineiro"[3] and "Alto Paranaíba"[4] mesoregions need to be reevaluated.

The objective of the present study was to assess the present situation of schistosomiasis mansoni in the "Noroeste de Minas" mesoregion by means of a malacologic survey and coproparasitologic diagnosis of primary school students.

MATERIAL AND METHODS

The "Noroeste de Minas" mesoregion with a population of 423,933 and an area of 56,264 km^2, comprises 13 municipalities. It borders the state of Goiás in the west, the state of Bahia in the north, the "Alto Paranaíba" mesoregion in the south, and the mesoregions of the "Norte de Minas" and "Central Mineira" in the east.

The malacologic survey was undertaken in all municipalities of this mesoregion, involving the water sources near the schools and those located in the north, south, east and west of the urban perimeter of each municipality.

The molluscs collected were transported to the laboratory, measured and examined by exposure to artificial light to verify the presence of *Schistosoma mansoni*. About five snails per water source were fixed immediately after capture for later morphologic identification[8].

Parasitologic diagnosis by the Kato-Katz[6] method (two slides per fecal sample) was applied to fecal samples from 3,283 elementary school children (7 to 14 years old) out of a total of 52,832 students in the mesoregion who attend the state public schools in the urban areas of the 13 municipalities. Epidemiologic investigations were undertaken in positive cases according to the norms of the National Health Foundation (FNS). In these cases

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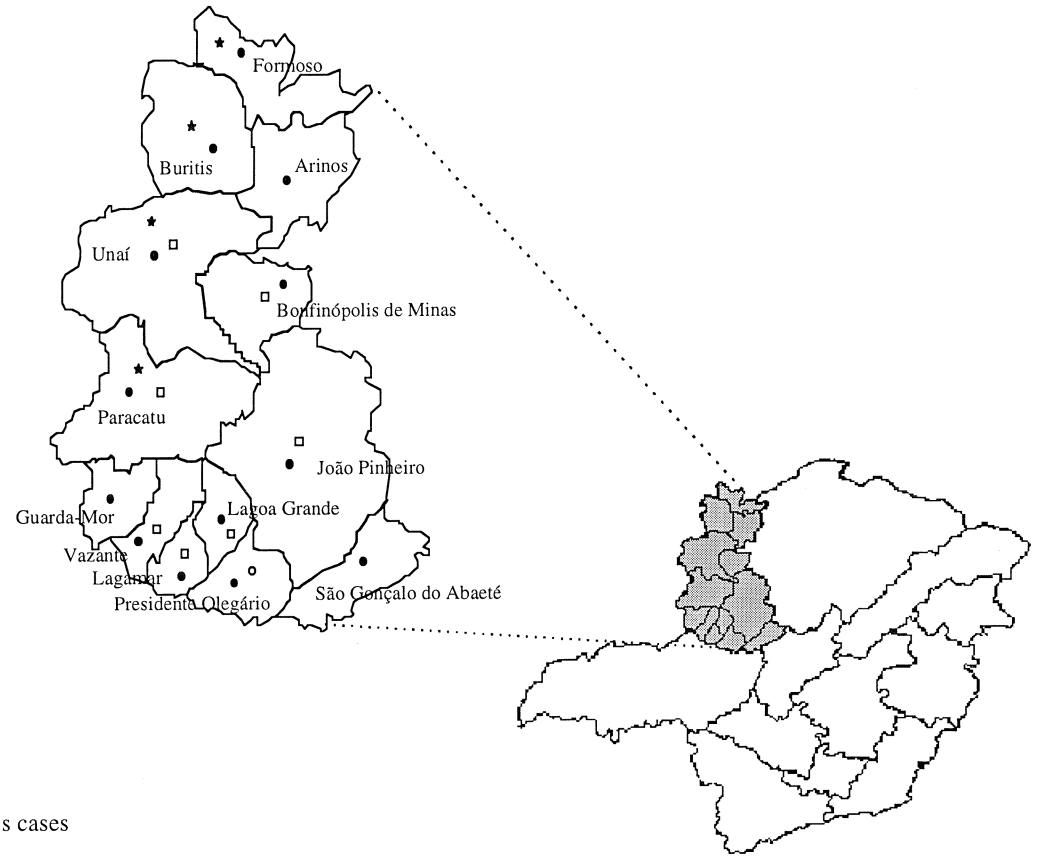

Fig 1- Distribution of *Biomphalaria* and schistosomiasis cases in "Noroeste de Minas" mesoregion, State of Minas Gerais, Brazil.

the origin of the patient, reports of previous infection and residence in endemic areas were determined to define the source of the schistosomiasis infection.

The minimum size of the sample to estimate the prevalence in the area was calculated based on estimated parameters of 2% prevalence, a precision of 0.5% and a confidence limit of 95%.

RESULTS

A total of 3,627 planorbids were collected from eight (61.5%) municipalities in the mesoregion in the malacologic survey. In the other five municipalities, no planorbids were found. The snails were identified as *Biomphalaria straminea* in seven municipalities (Unaí, Bonfinópolis de Minas, Paracatu, João Pinheiro, Vazante, Lagamar and Lagoa Grande) and as *B. peregrina* in one (Presidente Olegário) (Fig. 1). All snails were negative for *S. mansoni* cercariae.

Four (0.1%) of the 3,283 students examined were positive for *S. mansoni*. These students lived in the municipalities of Buritis, Formoso, Paracatu and Unaí and received antischistosomal treatment. The epidemiologic investigations demonstrated that none of the positive cases for *S. mansoni* was autochthonous.

DISCUSSION

Although large scale chemotherapy repeatedly used in many areas of Brazil has reduced the prevalence of schistosomiasis, this parasitosis is still expanding in other areas of the country. In fact, in the municipality of Paracatu, which is part of the mesoregion studied in this work, the occurrence of nine autochthonous cases of schistosomiasis has been reported, probably introduced in this municipality through migration related to the intense activity of alluvial gold extraction[2].

B. straminea and *B. peregrina* were captured in eigth municipalities in the "Noroeste de Minas" mesoregion. However, only *B. straminea* was of epidemiologic importance in the transmission of schistosomiasis. In Paracatu the occurrence of *B. straminea* was previously reported in 1972[9].

The prevalence of 0.1% found in the present paper results from cases imported from other areas in the country. These data showed that the prevalence of schistosomiasis in this mesoregion has not changed over the last 47 years[7,10], similarly to the mesoregions of "Triângulo Mineiro"[3] and "Alto Paranaíba"[4]. The "Noroeste de Minas" mesoregion, with the exception of the municipality of Paracatu, seems to continue to be non-endemic for schistosomiasis mansoni. However, the existence of

intermediate hosts in the area associated with the presence of migrants eliminating eggs of *S. mansoni* indicates the necessity of epidemiologic surveillance.

RESUMO

Reavaliação da esquistossomose mansoni em Minas Gerais, Brasil. III. Mesorregião Noroeste de Minas

Com o objetivo de verificar a possível presença da esquistossomose mansoni na mesorregião Noroeste de Minas, área do estado de Minas Gerais até o momento considerada indene para aquela parasitose, foi realizado um levantamento malacológico e um diagnóstico coproscópico nos 13 municípios da mesorregião. Foram coletados e examinados 3.627 planorbídeos, identificados como *Biomphalaria straminea* em sete municípios (Unaí, Bonfinópolis de Minas, Paracatu, João Pinheiro, Vazante, Lagamar e Lagoa Grande) e *B. peregrina* em um (Presidente Olegário). Os moluscos estavam negativos para *S. mansoni*. O exame coproscópico, pelo método Kato-Katz, foi realizado em 3.283 estudantes do 1º grau da rede estadual de ensino. Quatro estudantes foram diagnosticados com esquistossomose nos municípios de Buritis, Formoso, Paracatu e Unaí. Entretanto, nenhum dos casos foi considerado autóctone. Podemos concluir que a mesorregião do Noroeste de Minas continua livre da esquistossomose, mas a presença de hospedeiros intermediários de *S. mansoni,* associados a migrantes portadores da doença enfatiza a necessidade de implantação de um programa de vigilância epidemiológica na mesorregião Noroeste de Minas com o objetivo de prevenir a introdução da esquistossomose.

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