



ORIGINAL RESEARCH PAPER

Medical Science

PREVALENCE OF INTESTINAL PARASITES IN THE MUNICIPALITY OF ÁGUA BRANCA, PB, BRAZIL.

KEY WORDS: basic sanitation, public health, parasitic infections, helminthiasis

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ABSTRACT

In the world, the high rates of parasitic intestinal diseases caused by protozoa and helminths are characterized as a debilitating factor in public health, their dissemination is related to the lack of basic sanitation, related to deficiency in personal hygiene measures. The objective of this study was to identify and qualify the main intestinal parasitoses found in the results of parasitological exams of the patients from the municipality of Água Branca, PB, attended by the clinical analysis laboratory of the Quitéria Maria de Oliveira Hospital. It was analyzed the results of parasitological exams recorded in medical records, the data analyzed were from January 2011 to December 2013, they were separated into positive and negative results for the parasitological examinations, and the analyzed parasites were analyzed and their frequency in positive results. Of the total of 1,638 results analyzed, 38.46% are positive, with Entamoeba histolytica being the most frequent protozoan, with 274 cases (38.27%) and among the helminths, the Enterobius vermicularis with 6 cases (0.84%) Among the results positive for parasitosis, 13.02% had a polyparasitosis disease and 86.98% had monoparasitosis. It was concluded that almost 40% of the patients were infected with some species of parasite, with protozoa being the most detected in relation to helminths, and that measures are needed to raise awareness and combat these diseases, such as informing families about the damage that such parasites cause to health and improvements in basic sanitation conditions.

1 INTRODUCTION

Intestinal parasites are agents that cause serious health problems, which are manifested in ways that cause changes in the quality of life of parasitized individuals (1).

The prevalence of intestinal parasitoses is often high, causing an imbalance in the mainly nutritional well-being of contaminated persons (2).

In the world the high rates of parasitic diseases caused by protozoa and helminths stand out as a serious public health problem.

The lack of basic sanitation facilities, also affected by the poor hygiene measures of the population, are aggravating factors for the development of parasitic diseases (3). It is clear that the conditions of the environment in which the individual lives are an important factor for the spread of diseases, especially in populations of lower economic classes, with inadequate housing conditions.

In Brazil parasitic diseases are present in different regions of the country, regardless of the age of the individuals and their location, but it has a higher incidence in lower age groups, having as main host children, which can suffer changes in their development both physical and in school (4). However, children have a developing immune system, also related to the fact that many spend most of their time in schools, that is, crowded places which are conducive to the spread of diseases.

The lack of information also constitutes an operative factor for the propagation of parasitic diseases, causing that the carriers often are not aware of the health problems caused by such parasites, of the forms of contamination, so that they do not use prophylactic ways of combat, and many do not seek medical attention early for diagnosis and end up suffering serious consequences.

Transmission of parasites can occur from individual to individual by sharing intimate artifacts; through infected water and food and poor personal hygiene habits; through the soil, where the parasites leave their eggs, and finally they can be transmitted through organisms that are not parasites, but act in an intermediate way in the transmission of parasitoses (5).

The symptomatology is variant, of headache, nausea, abdominal pain, weakness, lack of appetite to more serious consequences, the variation will depend on the type of parasite and the nutritional status of the patient (3).

There are three types of disease prevention: Primary prevention, secondary and tertiary prevention, the first concerns prophylactic ways of control, the second is that measure that acts to prevent the development of disease, the third measure is to prevent the total unfitness of the individuals (6).

Several health management programs are deployed to combat parasitic diseases, but in underdeveloped countries the results are not so satisfactory. There is also a lack of more community involvement in an awareness-raising process (7). Knowing that such measures can and should be started at home, such as the simple act of washing hands before meals, and after using the bathroom, walking shoes, avoid sharing intimate artifacts, among others.

Based on the literature, it is noted that in Brazil, intestinal parasites are still widespread and highly prevalent, leading to the need for studies that bring information to society. With this, the present study aimed to provide a response to the population of the city of Água Branca, PB, on the frequent intestinal parasites caused by protozoa and helminths, seeking to draw a parasitic epidemiological profile of the municipality.

Revealing the importance of research and data collection as a

transfuser of knowledge to all society, because works of this magnitude bring an analysis of reality, problems and solutions, and are trainers of transfer of scientific information in the area of health and prevention to the development of infectious diseases .

2 MATERIAL AND METHODS

2.1 Data Collection

The present study was carried out through the collection of data from the results of parasitological examinations, from the results recorded in medical records of the Clinical Analyzes laboratory of the Quitéria Maria de Oliveira Municipal Hospital, in the city of Água Branca - PB.

The data were written in descriptive exploratory typology with a quantitative approach, where the analysis was carried out, aiming to trace a parasitic epidemiological profile of the municipality.

The results were analyzed for the period from January 2011 to December 2013, they were separated into positive and negative results for the parasitological tests, and the parasites were analyzed and their frequency in positive results. This frequency of cases was also analyzed according to the gender and age of the patient.

Data were analyzed using Microsoft Excel® software, version 2007, where the results were reported in tables and graphs, and compared with the specific literature.

2.2 Area of Study

The study was conducted at the White Water municipality, PB, located in the micro region of Serra de Teixeira, Paraíba hinterland, where you can be seen in Figure 1, which is including the geographical coverage area of the Brazilian semiarid region, defined by the Ministry of National Integration in 2005, its delimitation has as criterion the rainfall index, the aridity index and the risk of drought. It houses a population of 9,449 inhabitants, of which 4,061 reside in the urban area and 5,388 reside in the rural area. The municipality has an area of 236.608Km, data from the Brazilian Institute of Geography and Statistics, IBGE (8)

Figure 1. Location, Água Branca, Paraíba.



Source: IBGE, 2010.

The municipality has five SUS health facilities (8), among them the Clinical Analysis Laboratory of the Quitéria Maria de Oliveira Hospital, which serves the entire water-savanna population, where the results of this study were collected, as highlighted in Figure 2.

Figure 2. Health unit Quitéria Maria de Oliveira Hospital.



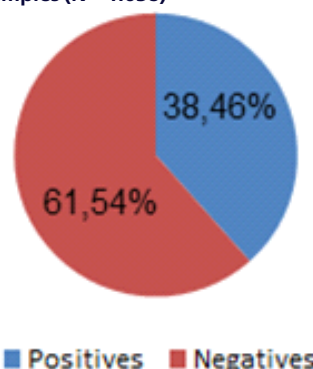
Source: Água Branca Notícias, 2018.

Municipal sanitation, joint management of water treatment, sewage, stormwater management and cleaning, are formed by the water supply system that specifically caters to urban dwellers with treated water, and family monitoring and distribution of chlorine. Just as the sewage network is also only present in the urban environment, facilitating the prevalence of parasitic infections (8).

3 RESULTS AND DISCUSSION

During the period January 2011 to December 2013, a total of 1,638 analyzes of existing stool tests for intestinal parasitic diseases were recorded. Of this total, 1008 (61.54%) presented negative results and 630 (38.46%), as can be seen in Figure 3.

Figure 3. Comparison between parasitized and non-parasitized samples (N = 1.638)



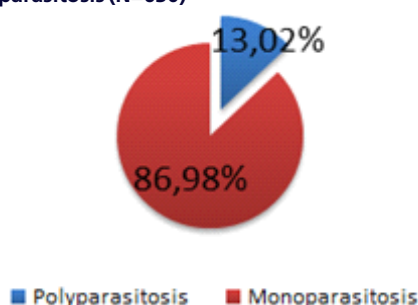
This percentage of positive cases found in the present study is similar to the results of a study carried out in schools in the periphery of Porto Alegre, RS, where from the 191 samples evaluated, 36% presented positive results on stool parasitology and 64% presented negative results (3), and lower than those reported in other studies. Data obtained in the city of Belo Horizonte, Minas Gerais, for a sample of 1850 people, 62.3% presented positive cases for parasitoses (10).

In a survey with a population of schoolchildren in Caxias do Sul, RS, 9,787 (58%) were positive (11), showing that the data found in the municipality of Água Branca, PB, of 38.46%, are positive at the level of action to carry out health management programs with the objective of reducing these indices, taking into consideration that the majority population in the sample was examined after medical indication through anamnesis.

It reminds us of the need for information to patients and the development of public policies for the prevention of the development of human health problems.

In Figure 4, of the 630 positive results, 548 (86.98%) had monoparasitosis and 82 (13.02%) had polyparasitosis. That is, they mostly have only one intestinal parasite.

Figure 4. Comparison between cases of monoparasitosis and polyparasitosis (N=630)



Correlating the data of Figure 4 with a work among the users of the health center of the Sousas district, Campinas, SP, where, in 770 records, 62.2% were cases of monoparasitosis (2).

The sociodemographic profile was traced in divergent domains in male and female, found among the results for the genus the presence of parasites of 65.71% female and 34.29% male.

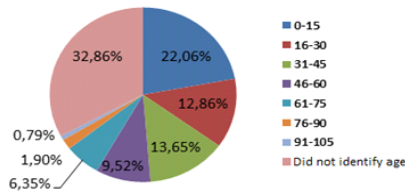
Similar to data obtained in the present study, those observed in Manaus, AM, the relationship with the gender variable determined that 53.1% were female and 46.9% male were users of the service for parasitic analysis of the sample (12).

A differentiating factor of this result may be the social reality of greater demand for medical care to be by women (13).

According to age (Figure 5), a determination of 15 to 15 years was separated in the analysis of age groups, as well as in the medical record, it was found unidentified assessments, highlighting as an element between data. The age group with the highest prevalence was 0 to 15 years.

As can be seen in Figure 5, there is a serious incidence between 0 and 15 years, which is characterized by a period in which, as previously mentioned, the immune system is still in development, and since it is identified as the school-age period, where it is characterized by a phase in which individuals are more susceptible to agglomerations, a fact that affects the spread of diseases.

Figure 5. Prevalence of positive cases according to patient's age (N=630).



According to a study carried out in the state of São Paulo, it was verified that the age range from 03 to 06 years old was the highest frequencies, 38.2%, and also remained high from 06 to 09 years, but with a tendency to (12.3% for those over 18 years of age), and so on (7), where the data are shown similarly in Figure 05.

For evaluations of the parasites found in the work, *E. histolytica* was the most frequent among protozoa and *E. vermiculares* among helminths

The *E. histolytica*, which may or may not have symptoms, is estimated to be approximately 480 million individuals infected with the disease, 10% of whom present as invasive form and 2% die; it has different stages and may vary from trophozoite and cysts, also occurring the metacitic trophozoite, and the pre-cyst (14).

The *E. vermiculares* parasite with a high incidence worldwide, and it affects mainly children, being more present in countries of temperate climate, its dissemination is related to personal hygiene measures, agglomerations of people in the same house, fact that can making the cycle of the parasitosis addictive, a low socioeconomic level, the symptomatology is associated with anal pruritus, perianal lesions and vulvovaginitis (15).

In Table 1 can be seen the number of cases that was found in the city of Água Branca, from January 2011 to December 2013, where the most common parasite was the *Entamoeba histolytica* with 38.27% of frequency.

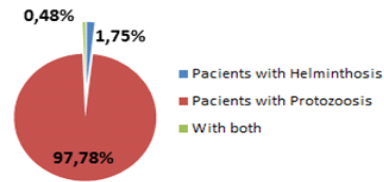
TABLE 1. Prevalence of intestinal parasites in the results of parasitological exams of feces performed in the municipality of Água Branca, from January 2011 to December 2013

Intensity of parasitism		
Parasite	Number of Cases	Frequency
<i>Entamoeba histolytica</i>	274	38,27%
<i>Endolimax nana</i>	236	32,96%
<i>Giardia lamblia</i>	78	10,89%
<i>Entamoeba coli</i>	75	10,47%
<i>Iodamoeba butschli</i>	38	5,31%
<i>Enterobius vermiculares</i>	6	0,84%
<i>Hymenolepis nana</i>	5	0,70%
<i>Tenia sp</i>	4	0,56%

Separating into protozooses and helminths, the incidence ratio of the sample is found, where 97.78% were patients with protozooses and a small quantitative of 1.75% for helminths, and only 0.48% were found with both types of intestinal parasites, as

can be seen in Figure 6.

Figure 6. Distribution of protozooses and helminths found in infected patients and parasite association in the same individuals

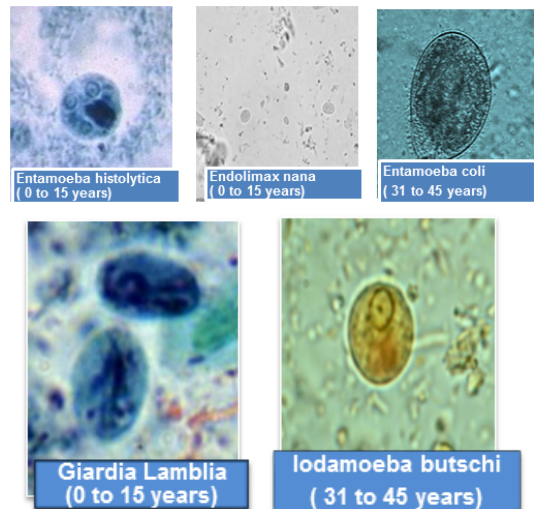


A similar study was carried out in Sananduva / RS; where the Protozoa were the most frequent with a quantitative of 6.8%, for 1.3% of helminths (6).

Separating by the age groups already defined, the following parasites are found in the study by age, as shown in Figure 7 for protozoa and Figure 8 for helminths. In the age range of 0 to 15 years, there are five parasitic typologies: *E. histolytica*, *E. nana*, *G. lamblia*, among the protozoa, and among the helminths, *E. vermicularis* and *H. nana*, presented small cases of *I. butschili* and *E. coli* in the ages of 31 to 45 years, and *Tenia sp* for 61 to 75 years.

In the evaluation of the medical records, the statistic of parasites was highlighted by age group, as shown in Figures 7 and 8.

Figure 7. Protozoan and association with age of greater prevalence



Source: Academic Atlas of Human Parasitology at USP

Figure 8. Helminths and association with age of greater prevalence.



Source: Academic Atlas of Human Parasitology at USP

A probable for the diagnosis of influence of such described parasites is the lack of adequate basic sanitation and practices of personal hygiene and of food, as well as the low relation of preventive examination, since the described records are of collections analyzed from medical indication, when the anamnesis performed, stigmatizes the existence of pathologies related to intestinal parasites.

The intestinal parasites helminths and protozoa can cause

sequelae to the health of the individual, the helminths that are the great parasites and the protozoa that are the small parasites, have a wide geographic distribution, however they are more accentuated to underdeveloped regions (16).

4 CONCLUSION

From the observed data it can be described that, the etiological agent of intestinal parasitoses more frequent in the human population of the municipality of Água Branca-PB; was *E. histolytica*, for protozoa, and *E. vermiculares* when speaking of helminths, parasitoses were generally more frequent in women and in patients with ages between 0 and 15 years old and rates of polyparasitosis were lower to those of monoparasitism.

The results obtained in this study show that there is still an important prevalence of intestinal parasitoses in the population of the municipality of Água Branca, PB, where almost 40% of the analyzed results were considered positive for some species of parasite, a fact that may represent a public health problem, affirming our persuasion, related to the importance of the prophylactic measures of control of the intestinal parasitoses.

The results of this research are in agreement with studies carried out in Brazil and in the Amazon region, which present high prevalence of intestinal parasites. Studies of this nature are propellers of information, as the data may be an important indicator of the sanitation conditions in which the population lives, it is expected that these indices may be the target of control for improvements in environmental conditions and consequently progress in the quality of life of the inhabitants of this city, as well as knowledge facilitator for the scientific community.

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