



ORIGINAL RESEARCH PAPER

Medical Science

EVALUATION OF INTESTINAL PROTOZOOSIS IN THE HUMAN POPULATION OF THE MUNICIPALITY OF TEIXEIRA - PB, BRAZIL

KEY WORDS: Detection; Enteroparasitosis; Protozoa.

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ABSTRACT

Intestinal parasites are responsible for causing a series of complications in individuals parasitized by them. These complications can be from the simplest, but can also lead to death if the patient has a high parasite load in his or her body and it is not diagnosed in time for an effective and rapid treatment. These parasites are transmitted to humans mainly through incorrect hygiene measures and poor basic sanitation. The present study had as objective to observe the occurrences of enteroparasitosis in the samples of the patients attended in the municipal laboratory of the Hospital Sancho Leite in the city of Teixeira-PB, aiming to observe the relation to the degree of parasitism of the samples presented positively in a parasitological examination and with that make the correct treatment. From the records from February 2016 to December 2017 of patients attended at the Hospital, a total of 575 patient records were evaluated. In the year 2016, 180 positive cases were registered for protozoa and 130 negative, these results totaled 310 people attended in the municipal laboratory. In the year 2017, there were 154 positive cases for protozoa and 111 negative, totaling 265 consultations in the laboratory.

INTRODUCTION

Intestinal infections caused by helminths and protozoa are estimated to affect a large number of individuals, causing illnesses in about 450 million individuals around the world, most of them affecting children because they are representing a group more vulnerable to this type of infection, since most of the time they do not perform their personal hygiene adequately and are often exposed to soil and water, which are considered important sources of contamination. (WHO,2008;MONTRESOR et al.,2002)

According to the World Health Organization, an estimated 1.221 billion people are infected with *Ascaris lumbricoides*, 795 million for *Trichuris trichiura*, 740 million for hookworms, about 200 million for the *Entamoeba histolytica/Entamoeba dispar* complex and 400 million by *Giardia lamblia*. (WHO, 2009)

The main risk factors associated with parasitic infections are: poor sanitary, educational, social and economic conditions; insufficient water treatment; high rate of agglomeration of people; improper use of soil and contamination of soil and food. Intestinal parasites can cause symptoms such as diarrhea, intestinal malabsorption, intestinal obstruction, anemia, colitis and malnutrition, as well as being responsible for deficient learning and physical development of the child. (BOIA et al., 1999; MARQUES et al., 2015)

The parasitic infections cause the most varied symptoms and

disorders in the individual affected by some type of parasite. It is known that early malnutrition in life stages causes decreased ability to develop work, increased vulnerability to infections, poor cognitive ability, decreased metabolic biotransformation, intestinal malabsorption of nutrients, diarrhea, intestinal obstruction, colitis, learning disability and decrease in the child's physical development. (FERREIRA, 2000; NEVES et al., 2005; PEREIRA, ATWILL)

It is necessary to identify, treat and prevent parasitic infections in order to avoid future epidemics and the formation of new endemic areas. The objective of this study was to evaluate the intestinal parasites prevalent in the Municipality of Teixeira-PB, seeking to draw a parasitic epidemiological profile of the municipality.

2 MATERIAL AND METHODS

2.1 Data collect

This was an experimental study aimed at the evaluation of enteroparasitoses in the human population of the city of Teixeira, which were attended at the Municipal Laboratory of Hospital Sancho Leite, located at Rua José Duarte Dantas in the municipality of Teixeira, Paraíba, Brazil.

The results collected were related to the period from January 2016 to December 2017, where I stopped only searching for intestinal infections, and the parasites were analyzed. The frequency of cases was also analyzed according to the gender and age of the patient, being observed the rates of monoparasitism and polyparasitism.

Data were analyzed using Excel® Software, version 2010, where the results were reported in tables and graphs, being compared with the specific literature.

2.2 Study area

The study was carried out in the municipality of Teixeira-PB (Figure 1), located in the Hinterland of Paraíba, at an altitude of 732m, according to the IBGE (Brazilian Institute of Geography and Statistics), in 2017 its population was estimated at 15,191 inhabitants. Territorial area of 114 km²

Figure 1. Location of Teixeira - PB



Source: IBGE, 2017

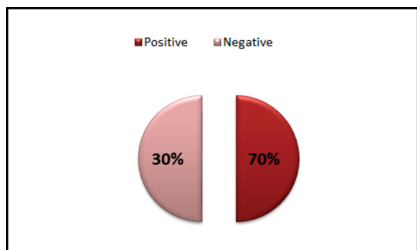
The municipality has a municipal hospital which supports the population of Teixeira and surrounding city, being the place where all the data for the accomplishment of this work were collected.

The present study will have the benefit of providing the population with a better understanding and awareness of correct hygiene measures so that possible contamination by protozoa could be avoided.

3 RESULTS AND DISCUSSION

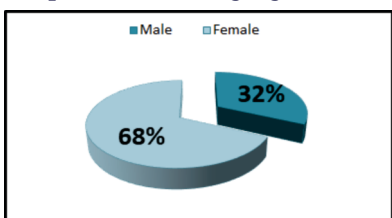
In the Survey we analyzed the records of patients seen at the Municipal Laboratory of Hospital Sancho Leite in the Municipality of Teixeira-PB. The analyzed records counted 575 patients attended. From the 575 patients treated, 334 (70%) had positive results for some protozoa and 271 (30%) with negative results. (Figure 2).

Figure 2. Result of analysis of positive and negative records. (N= 575)



This percentage of positive cases identified in the study conducted in the city of Teixeira-PB was similar to the results of a study conducted in the city of Tangará da Serra, MT, where 51.4% of the 1,596 samples tested positive for parasitological examination of feces and 48.6% presented negative results (THIAGO, PV et al). When analyzing the records, they presented results of 68% of positivity in females and 32% of males, both parasitized by some type of protozoan (Figure 3).

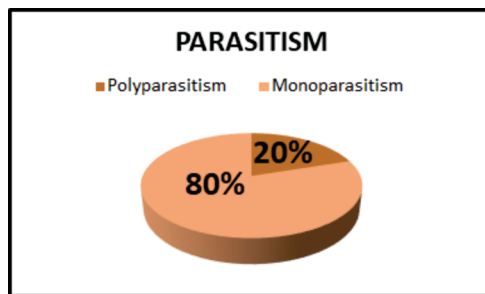
Figure 3. Sample results relating to gender



The present study is similar to the study by Frei et al., which described a sociodemographic profile that was described in divergent domains: male and female, and found among the results for gender the presence of parasitosis in 64.23% female, and 35.77% male. The fact that the high prevalence is related to the female gender is due to the effective demand of women for medical care to be higher (GOMES, R., NASCIMENTO, E.F.ARAÚJO, F.C).

When analyzing the records, the present study verified that in 70% of the positive cases the individual had 80% of monoparasitism and 20% of polyparasitism (Figure 4). (ORLADINI, MR, MATSUMOTO, LS) says that the human host can host different species of enteroparasites and the fact that the external environment presents high degrees of contamination increases the probability of infections with polyparasitism, which was not what was observed in this work, where it obtained a greater presence of monoparasitism.

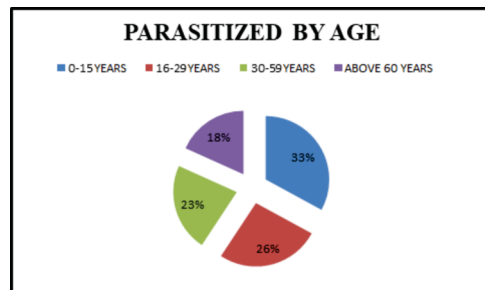
Figure 4. Result between cases of Monoparasitism and Polyparasitism



According to the age, the present study evaluated the records dividing by age group, being: 0-15 years with 110 (33%) parasitized, 16-29 years with 88 (26%) parasitized, 30-59 years 75 (23%) parasitized and above 60 years with 61 (18%) parasitized (Figure 5).

Observing that there is a considerable prevalence of children aged 0-15 years being parasitized, since this age group may be more affected by these infections due to the maturation of the immune system, and because it is identified as the school age period, where the individuals are more susceptible to agglomerations thus facilitating the spread of disease. The low rates of incidence and prevalence in adults would be related to the change in hygiene habits.

Figure 5. Positive results according to age

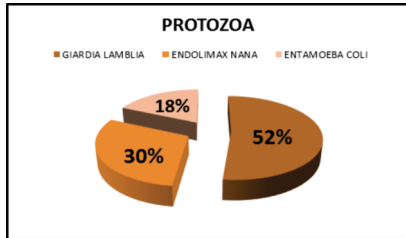


The present study found in the analyzed records that the prevalent protozoa were Giardia lamblia, Endolimax nana and Entamoeba coli. When analyzing all the records it was verified that 52% were parasitized by the protozoan Giardia lamblia, 30% by Endolimax nana and 18% by Entamoeba coli. (Figure 6).

This study differs from the study by LOPES et al., 2010, where it found a higher positivity and a higher prevalence of Endolimax nana presenting in 48.4% of the studied population, followed by Entamoeba coli with (40.9%) and Giardia lamblia (10.7%). In the study carried out by LOPES et

al., 2010, it was *E. nana* that differs from previous studies, where the prevalence of protozoa present in the studied populations was *Giardia lamblia*.

Figure 6. Result of Protozoa affecting the population



G. lamblia is the most prevalent pathogenic intestinal protozoan in the world and its high prevalence can be explained by the mode of transmission of protozoa, which is generally made by water; ingestion of vegetables and fruits contaminated by cysts (PEREIRA, M.G.C; ATWILL, E.R.; BARBOSA, A.P). In Figure 7 can be viewed the most common form of the parasites that affect the most the population in Brazil.

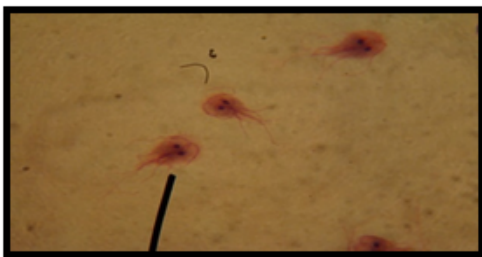
According to BRESOLIN; ZUCCOLOTTO, 2003 the prevention of giardiasis can be done through simple recommendations such as consumption of filtered or boiled water, personal hygiene guidelines, adequate disposal of waste and treatment of infected individuals.

According to the studies already carried out, it is known that in Brazil, intestinal enteroparasitosis represent a public health problem, as in other developing countries, since it affects a large number of individuals, causing great damage to the Brazilian population since many individuals are not able to treat these parasites.

Figure 7. The microscopic forms of protozoa that affect the study population.

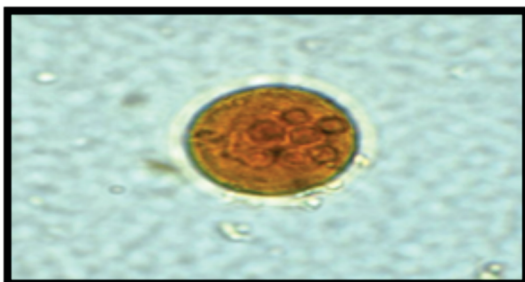
- A) Trophozoite form of *G. lamblia*
- B) Trophozoite form of *E. coli*
- C) Cystic form of *E. nana*

A) *Giardia lamblia*.



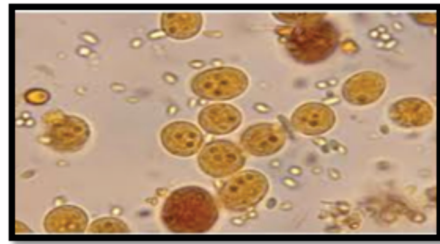
Source: <http://www.wadsworth.org/testing/parasitologyD>

B) *Entamoeba coli*.



Source: <http://www.wadsworth.org/testing/parasitologyD>

C) *Endolimax nana*.



Source: <http://www.wadsworth.org/testing/parasitologyD>

These parasites are found in environments where they can complete their life cycles, favored by environmental conditions, especially humidity and temperature, for embryogenesis and survival of transmission forms, cysts, larvae and eggs. Extreme temperatures and humidity may be harmful to parasitic forms (WALTERS, 1998).

CONCLUSION

In the municipality of Teixeira-PB where the research was carried out, it was observed that there is a high frequency of individuals parasitized by protozoa, which causes some concern because they are parasitized in large majority by pathogenic protozoa.

We have seen that there is a considerable difference between the female sex and the male sex when it comes to which were more parasitized by some type of protozoan, and we also saw that the protozoan that prevailed most parasitizing these individuals was *Giardia lamblia* thus causing giardiasis.

Thus, we can see that intestinal parasites continue to be a major problem for public health, since they directly interfere with the health of the individuals that affect these parasitic diseases, and can therefore lead to serious consequences if they are contaminated by pathogenic parasites.

It is of utmost importance that prophylactic measures be taken so that this can prevent these intestinal parasites from affecting more individuals and generating the same consequences for the health of all.

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