

National State Survey to identify the presence of intestinal parasitic infections of mixed randomized patients as prevention who attended the IMSS laboratory

Encuesta Nacional Estatal de identificar la presencia de infecciones parasitarias intestinales de pacientes aleatorios mixtos como prevención que acudieron al laboratorio del IMSS

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Abstract

Introduction: Nowadays in our state, intestinal parasitic diseases are still endemic, with a greater frequency in rural and mountainous urban areas. After the years have elapsed since the last national survey, it was necessary to carry out a new survey to know the prevalence rates of intestinal parasitosis and to compare the results obtained between both studies. Such knowledge would be of great value in developing health strategies and designing intestinal parasitic infection control programs. Objective: to determine the current prevalence rates of intestinal parasites, to compare the results with those of the survey obtained. Methods: a random cross-sectional descriptive study was carried out during the months of December 2018 to March 2019 in a random sample of both sexes from the population of urban communities and the province of Zacatecas, Zac. Each one had a stool sample collected that was analyzed by the direct examination method, the Willis concentration technique, and the Kato-Katz examination; A questionnaire was also applied to them. Results: when comparing the results of the national and state surveys of intestinal parasitic infections carried out in 2009 and 2018, it was found that, in general, infections by parasites decreased, both helminths and pathogenic protozoa, although those infected with commensals increased their frequency in that of 2019. There was also a decrease in the frequency of infections by all species of soil-transmitted helminths, *Trichuris trichiura*, *Ascaris lumbricoides*, ancylostomídeos, and *Strongyloides stercoralis*, as well as by the pathogenic protozoa *Giardia lamblia* and *Entamoeba histolitica*. Conclusions: when comparing the results of national and state surveys of intestinal parasite infections carried out in 2018 and 2019, it was found that in general the frequencies of infections with intestinal parasites decreased. The finding in both studies of a higher frequency of infection with parasites or commensals in the group aged 5 to 14 years (school age), supports the recommendation to place emphasis on control programs for intestinal parasites in this age group.

National state survey, Prevalence, Intestinal parasitism, Intestinal parasitic infections

Resumen

Introducción: Hoy en día en nuestro estado, se encuentran enfermedades con parasitosis intestinales continúan siendo endémicas, con una mayor frecuencia en zonas urbanas rurales y montañosas. Después de haber transcurrido de los años desde la última encuesta nacional, se hizo necesario hacer una nueva encuesta para conocer los índices de prevalencia de las parasitosis intestinales y comparar los resultados obtenidos entre ambos estudios. Tal conocimiento resultaría de gran valor para elaborar estrategias de salud y el diseño de programas de control de las infecciones parasitarias intestinales. Objetivo: determinar los índices actuales de prevalencia de las parasitosis intestinales, comparar los resultados con los de la encuesta, obtenidas. Métodos: se realizó un estudio descriptivo de corte transversal aleatorio durante los meses de diciembre 2018 a marzo del 2019 en una muestra aleatoria de ambos sexos a la población comunidades urbanas y provincia de Zacatecas, Zac. cada uno se le recogió una muestra de heces que fue analizada por el método de examen directo, la técnica de concentración de Willis y el examen de Kato-Katz; también se les aplico un cuestionario. Resultados: al comparar los resultados de las encuestas nacionales y estatales de infecciones parasitarias intestinales realizadas en 2009 y 2018, se encontró que en general disminuyeron las infecciones por parásitos, tanto los helmintos como los protozoos patógenos, aunque los infectados con comensales aumentaron su frecuencia en la de 2019. También se produjo una disminución de las frecuencias de infecciones por todas las especies de geohelminths, *Trichuris trichiura*, *Ascaris lumbricoides*, ancylostomídeos, y *Strongyloides stercoralis*, así como por los protozoos patógenos *Giardia lamblia* y *Entamoeba histolitica*. Conclusiones: al comparar los resultados de las encuestas nacionales, y estatales de infecciones parasitarias intestinales realizadas en 2018 y 2019, se encontró que en general disminuyeron las frecuencias de infecciones con parásitos intestinales. El hallazgo en ambos estudios de una frecuencia mayor de infección con parásitos o comensales en el grupo de 5 a 14 años (edad escolar), respalda la recomendación de poner énfasis en los programas de control para las parasitosis intestinales en este grupo de edad.

Encuesta estatal nacional, Prevalencia, Parasitismo intestinal, Infecciones parasitarias intestinales

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Introduction

Intestinal parasite infections continue to constitute an important health problem due to their high prevalence rates and wide worldwide distribution, especially in tropical and subtropical regions. The child population continues to be the most affected, something that has not changed much in recent decades, despite the fact that effective therapeutic resources have increased and many countries have established control programs for intestinal parasites.^{1,2} Although the Mortality from these infections is low, each year, to name a few examples, up to 100,000 deaths due to amoebiasis and hundreds of thousands from helminthiasis occur worldwide [1-4].

In parts of the province, there is government concern to improve the quality of life of the population, through the implementation of multiple strategies and through the Public Health Institution, so the country has managed to significantly improve the existing health indicators.

In 1975, a survey of intestinal parasitism was carried out, considered by some to be national, although only helminths were reported, with a prevalence of 18.4% for *Trichuris trichiura*.⁸ Subsequently, in 1983 it was decided to carry out a new national survey, which was representative of the Zacatecan population and that in addition to helminths, protozoa were included, for which it was considered as the First National Survey of Intestinal Parasitism, which at its end in 2009, revealed that 54.6% of the population was infected with a parasite or diner, or more; 33% were infected with medically important parasites, and the age group most affected was between 5 and 14 years of age.⁹ More recent research has suggested that intestinal parasitism may be highly endemic in some rural areas and mountainous provinces.

Taking into account these antecedents, and the fact that several years have passed since the last national survey was carried out, it was necessary to know how the prevalence rates of intestinal parasitosis are currently behaving, and to compare the results obtained between both surveys when after this period.

Such knowledge would be of great value to develop health strategies and the design of intestinal parasitic infection control programs in different provinces of the state of Zacatecas, so it was decided in 2009 to carry out the second state survey of intestinal parasitism, of which it is offered in the present work some of its main results.

Methods

A sample of 90% was carried out, the study was descriptive, longitudinal, transversal, observational, random during the months of December 2018 to March 2019, the sample was random for both sexes who voluntarily attended the IMSS Institute laboratory.

Sample

A study was designed that had a national, state scope because all the individuals were cared for. IMSS had the opportunity to be included. The estimated size of the sample was around 90% subjects, the sample was polymetallic and the levels of selection of the sample were randomly, both sexes who came from urban communities, as voluntarily as preventive health, from urban communities, Municipalities, provinces Guadalupe Zacatecas health areas, IMSS clinic random people who came to the laboratory.

Collection and processing of parasitological samples and quality control.

The stool samples were analyzed by spontaneous defecation to each person, they voluntarily attended the IMSS, they were collected in clean and dry bottles, and they were immediately transferred to the laboratory for processing. The diagnostic techniques used were the direct examination method with eosin and Lugol, the Willis concentration technique, and the quantitative Kato-Katz examination.

For the quality control of the diagnosis, all the urban communities of the province of Zacatecas that voluntarily attended the Laboratory of the IMSS Institute of Zacatecas. 5% of the fecal samples positive for helminths and protozoa, 2% negative, as well as 5% of the positive slides by the Kato Katz technique for *Trichuris trichiura* and *Ascaris lumbricoides*, and 2% of the slides negative for helminths.

Procedures for collecting information

A questionnaire model was designed, which was submitted to the opinion of experts for possible modifications. The survey was actively filled out by individual, in Provincial Hygiene Epidemiology and Microbiology.

Treatment schemes

Most of the individuals who were found to be infected with pathogenic parasites were treated with their respective ones, who came voluntarily as a preventive health, subjects according to therapeutic schemes established in the medical literature.

Inclusion and exclusion criteria

The inclusion criterion was availability of the exclusion criteria were: refusal to participate, accepting that they were taking an antiparasitic drug, undergoing radiotherapy or chemotherapy treatments, or presenting limiting mental or physical illnesses.

Pilot study

A pilot test was carried out, in which they went to the (IMSS) laboratory, in the municipality of the rural community and Zacatecas province under conditions like those set for the research, to determine in practice the operation of the methodology proposed for the survey. Once this pilot test was completed, the difficulties for its implementation were identified.

Ethical aspects

The criteria of randomized patients, which were determined in the laboratory clinic of the (IMSS), as well as the Committees that review biomedical research, were met. The known benefits and risks or inconveniences involved, the confidentiality of the information is kept, above all.

Data analysis

They were stored and tabulated with the Microsoft Access suite of programs. Percentages were calculated as summary measure for qualitative variables; Comparisons were made of the results of the distribution of intestinal parasites between the surveys carried out in different years from December 2018 to March 2019.

Results

The general results that allow the comparison between the national state surveys of intestinal parasitic infections carried out in various years 2018 and 2019. In general, a decrease in infections by parasites was found, both in helminths and pathogenic protozoa, in the groupings that include these with the diners; However, when the percentage of random samples of both sexes infected with commensals is analyzed separately, an increase in the frequency was observed in the survey carried out, The frequency of infections due to parasitic and commensal species in urban communities and provinces de Guadalupe zacatecas and decreased throughout these years, it was observed that there was a decrease in the frequencies of infections by all species of soil-transmitted helminths, *Trichuris trichiura*, *Ascaris lumbricoides*, ancylostomidae and *Strongyloides stercoralis*. This same decrease in the frequency of infections in 2009 was found with the pathogenic protozoa *Giardia lamblia* and *Entamoeba histolytica / E. dispar*, and the diners: *Endolimax nana* and *Entamoeba coli*.

Conclusions

Several studies have been carried out to know the prevalence of intestinal parasitism. Except that one of the surveys in 1984 considered as the first national survey of intestinal parasitism, the rest of the investigations were not representative of the country, because they considered for their analysis, accumulated results of parasitological examinations obtained in patients who attended voluntarily. wing of the IMSS Institution.

Annexed

On the slope of a study of gastrointestinal diseases, with frequency of parasitosis, in random patients, of both sexes, from the IMSS institution in Zacatecas

1.- How old are you?

- a) 1 month to five years
- b) 5 to 20 years
- c) 20 to 60 years

2.- Who do you live with?

- a) with your parents
- b) alone
- c) Others?

3.- What place are you from?

a) Foreign, b) State of Zacatecas c). Others

4.- What gender do you have?

a) Woman b) Man C) other

5.- How many live in your house?

a) 1 to 3 b) 3rd 6 c) 6 to 10

6.- You live in your parents' houses

a) Rented c) Own c) Loaned d) other

7.- How many times do you get sick to your stomach in a year.

a) 1 month b) frequent c) Never c) other d) other

8.- How many times do you brush your mouth a day?

a) once a day b) twice a day c) three times a day d) other

9.- What snacks like to eat a lot of fried foods

a) Churros b) potatoes c) d) Seeds c) peanuts d) others

10.- How often do you eat fried foods

a) once a week b) three days a week c) everyday d) other.

11.- Every time you do a preventive exam.

a) six months b) one year c) three years d) never

12.- You have the services in your home.

3. Molina N, Pezzani B, Ciarmela M, Orden A, Rosa D, Apezteguía M, Basualdo J, Minvielle M. Intestinal parasites and genotypes of *Giardia intestinalis* in school children from Berisso, Argentina. *J Infect Dev Ctries.* 2011; 5:527-34.

4. Navone GT, Gamboa MI, Oyhenart EE, Orden A B. Intestinal parasitosis in Mbya-Guarani populations from Misiones Province, Argentina: epidemiological and nutritional aspects. *Cad Saude Publica.* 2006; 22:1089-100.

5. Quiroz R.H. 1984. *Parasitología y enfermedades parasitarias en animales domésticos.* México, Limusa: 311-318.

6. Sánchez Vega JT, Tay Zabala J, Robert Guerrero L, Rome ro Cabello R, Ruíz Sánchez D, Rivas García C. Frecuencia de parasitosis intestinales en asentamientos humanos irregulares. *Rev Fac Med UNAM.* 2000; 43:80-3.

7. Schuster FL, Visvesvara GS. Free-living amoebae as opportunistic and non-opportunistic pathogens of humans and animals. *Int J Parasitol.* 2004; 34:1001-27.

References

1. Indelman P, Echenique, C, Bertorini G, Racca L, Gomez C, Luque A, Magaró H. Parasitosis intestinales en una población pediátrica de la ciudad de Rosario, Santa Fe, Argentina. *Acta Bioquím Clín Latinoam.* 2011; 45:329-34.
2. Marshall MM, Naumovitz D, Ortega Y, Sterling CR. Waterborne protozoan pathogens. *Clin Microbiol Rev.* 1997; 10:67-85.