

PREVALENCE OF GIARDIASIS IN HUMAN SOCIETIES, IN THE CLINICAL HOSPITAL OF INFECTIOUS DISEASES, ORADEA, BIHOR, BETWEEN 2001-2005

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Abstract

Giardiasis is an intestinal parasitosis (parasite zoonosis), that affects humans and other vertebrates, produced by the flagellated protozoa Giardia spp. In the current document, the objective has been to analyze, epidemiologically, clinically and paraclinically, the giardiasis cases registered in the Infectious Diseases Clinic of Oradea, Bihor, from January 2001 to December 2005. Studies have shown the following, occurred on patients: prevalence of Giardiasis has had the value of 8,29%, with monthly limits between 0.0-17.1%. Infection has had an increased spread on children between 5 to 14 years old (13.3%), on youths between 15 to 24 years old and on adults between 35 to 44 years old. 34,33 % of the positive diagnosed patients come from rural environment and 65,67% from urban environment. The most frequent international signs and symptoms have been: abdominal pain (83,6%), especially diffuse (63,2%), followed by loss of appetite (76,8%) and pain on palpation (60,2%), especially in the right hypochondrium (42,2%).

KEYWORDS: giardiasis, giardia, duodenalis, protozoa, parasite

INTRODUCTION

Giardiasis, produced by *Giardia spp.*, forms a parasitosis of great epidemiological and clinical importance due to its high prevalence and pathogenicity amongst animals as well as amongst humans, especially within infant population. Giardiasis is a digestive zoonosis, produced by *Giardia* type protozoan, most commonly involved species being *Giardia duodenalis*.

Interest in this flagellate protozoan was implemented in the second half of the 20th century through recognition of its pathogenic potential in 1962 and proving, in 1987, that experimental human infection with *Giardia lamblia* is according to Koch's postulates.

Being one of the most spread zoonosis in the country and in the world, with important economic and social implications, mixed experts committees of The World Health Organization have specified in countless times the necessity of international supervising of zoonosis. In some countries, multidisciplinary interministerial bodies have been created for promotion of cooperation within fight campaigns against zoonosis. In our country, the Sanitary - veterinary Law (law 60/1974) stipulates the necessity of collaboration between human doctors and veterinarians for preventing

and repelling zoonosis and food poisoning. The main epidemi-zoonotic problems, raised by parasitic zoonosis, are those referring to observation, prevention and limitation.

MATERIAL AND METHOD

Research in progress towards giardiosis have focused the following objectives:

- Epidemiological research regarding the evolution of giardiosis on children and adults interned at the Infectious diseases Clinic of Oradea,
- Clinical research regarding evolution of giardiosis on children and adults interned in the Infectious Diseases Clinic of Oradea,

Epidemiological and clinical research towards the evolution of giardiosis on children and adults have been done between January 2001 and December 2005.

Epidemiological and clinical aspects have been tracked on patients diagnosed with giardiosis interned in the Infectious Diseases Clinic of Oradea, Gastroenterology Ward.

In the upper mentioned period, laboratory diagnosis in giardiosis on children and adults from the upper mentioned institution has been released within the laboratory of the Infectious Diseases Clinic of Oradea. The examination has been conducted using only one feces probe for each child and adult. Examination has been realised one probe of feces, using coproscopic methods, the enrichment with sodium chloride solution by flotation method (Willis method).

Incidence of giardiosis as well as PR on age, sex and source environment categories has been tracked. On giardiosis infected patients, reasons of internment and symptomatology given by the parasital infection have been pursued, as well as treatment.

Tracked age categories have been: <1 year, 1-4 years, 5-14 years, 15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, 65-74 years, 75-84 years and >85 years .

RESULTS AND DISCUSSIONS

The present study has been carried out between 01st January 2001 and 31st December 2005, at the Infectious Diseases Clinic of Oradea, recorded cases being part of a retrospective study, based on medical documentation (observation sheets). A number of 1.666 of patients diagnosed with giardiasis have been studied from the total of 20.098 interned at the Clinic of Infectious Diseases of Oradea, Bihor county, during the mentioned period.

During the study period, incidence of *Giardia spp.* infection has been 8,29% and anual prevalence of giardiasis has fluctuated (16,36% - 5,04%). Evolution of *Giardia spp.* prevalence amongst the interned patients during the 5 year period has had a decreasing trend (from 16,36% to 5,04%), the highest value being reached in 2001 (16,36%) and the lowest in 2004 (5,04%)(*Table 1*). The correlation of giardiasis and the months of the year is represented in *Table 2*. During the 5 years period over 20% of cases have been recorded in June and July.

Table 1

Prevalence evolution of *Giardia spp* infection on interned patients at the Infectious Diseases Clinic of Oradea (2001 - 2005)

Year	Nr. of interned patients	Nr. of giardiosis cases	%
2001	3424	560	16,36
2002	4024	273	6,78
2003	4179	332	7,94
2004	4285	216	5,04
2005	4186	285	6,81
Total	20.098	1.666	8,29

Table 2

Distribution for *Giardia spp* infection cases, according to the moths of the years, on patients interned at Infectious Diseases Clinic of Oradea (2001 - 2005)

Month	2001		2002		2003		2004		2005	
	Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%
January	41	7,3	43	15,8	31	9,3	6	2,8	36	12,6
Febrry	45	8,0	37	13,6	35	10,5	7	3,2	18	6,3
March	30	5,4	22	8,1	28	8,4	7	3,2	31	10,9
April	40	7,1	27	9,9	27	8,1	16	7,4	18	6,3
May	26	4,6	10	3,7	29	8,7	6	2,8	40	14,0
Iune	62	11,1	17	6,2	30	9,0	42	19,4	31	10,9
Iuly	70	12,5	22	8,1	27	8,1	37	17,1	21	7,4
August	66	11,8	24	8,8	23	6,9	23	10,6	22	7,7
September	49	8,8	12	4,4	27	8,1	37	17,1	14	4,9
October	53	9,5	7	2,6	26	7,8	6	2,8	15	5,3
Nvember	38	6,8	14	5,1	25	7,5	15	6,9	21	7,4
December	40	7,1	38	13,9	24	7,2	14	6,5	18	6,3
Total	560	100,0	273	100,0	332	100,0	216	100,0	285	100,0

During the given period of 5 years, over 60% of the *Giardia spp* infected patients have been women (60,8%), women/men ration being: 1,5:1. Along the study this ratio has been between 1,4:1 in 2005 (59,6% versus 40,4 %) and 1,9:1 in 2002 (65,6% versus 34,4%)(*Table 3*).

Table 3.

Distribution of giardiasis cases depending on gender compared by years at the Infectious Diseases Clinic of Oradea (2001 - 2005)

Year	Women		Men	
	Nr.	%	Nr.	%
2001	325	58,0	235	42,0
2002	179	65,6	94	34,4
2003	204	61,4	128	38,6
2004	135	62,5	81	37,5
2005	170	59,6	115	40,4
Total	1013	60,80	653	39,20

In what regards the incidence of giardiasis depending on the source environment, a high percent has been observed on patients coming from urban environment, comparative to those who come from rural environment: respectively 1.094 cases have been recorded on patients from rural environment (34,33%) and 572 cases on patients from urban environment (65,67%), resulting a urban/rural ratio of 1,9:1. This ratio takes values between 2,8:1 in 2001 (71,3% versus 28,8%) and 1,4:1 in 2004 (58,8% versus 41,2%)(Table 4).

Table 4.

Distribution of giardiasis cases depending on the source environment on patients interned at the Infectious Diseases Clinic of Oradea (2001 - 2005)

Anul	Rural		Urban	
	Nr.	%	Nr.	%
2001	161	28,8	399	71,3
2002	97	35,5	176	64,5
2003	125	37,7	207	62,3
2004	89	41,2	127	58,8
2005	100	35,1	185	64,9
Total	572	34,33	1094	65,67

Incidence of giardiasis depending on age categories has shown high variations, a direct proportional relation being observed comparative to the patient's age, maximum incidence being recorded within the following categories: 5-14 years – 13,5%, 15-24 years – 16,5%, 25-34 years -18,4%, 35-44 years - 17,5%, and 45-54 years, respectively 16,0%. In the rest of the age categories incidence has been under 13%, the lowest being 0,4% on the >85 years category (Table 5).

Table 5.

Incidence of giardiasis depending on age, on patients interned at the Infectious Diseases Clinic of Oradea, (2001 - 2005)

Age	2001		2002		2003		2004		2005	
	Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%
< 1year	3	0,5	0	0,0	1	0,3	0	0,0	0	0,0
1-4 years	9	1,6	11	4,0	2	0,6	9	4,2	10	3,5
5-14 years	87	15,5	27	9,9	34	10,2	30	13,9	47	16,5
15-24 years	104	18,6	41	15,0	50	15,1	44	20,4	36	12,6
25-34 years	102	18,2	67	24,5	55	16,6	36	16,7	47	16,5
35-44 years	93	16,6	43	15,8	69	20,8	30	13,9	57	20,0
45-54 years	73	13,0	45	16,5	65	19,6	36	16,7	47	16,5
55-64 years	52	9,3	25	9,2	35	10,5	17	7,9	28	9,8
65-74 years	29	5,2	8	2,9	13	3,9	12	5,6	11	3,9
75-84 years	6	1,1	5	1,8	7	2,1	2	0,9	2	0,7
>85 years	2	0,4	1	0,4	1	0,3	0	0,0	0	0,0
Total	560	100,0	273	100,0	332	100,0	216	100,0	285	100,0

Regarding the eventual correlation between giardiasis and clinical diagnose set on internment or subsequently, it has been observed a frequent association of giardiasis with acute colecistitis, enterocolitis, reactive alergoderma, acute gastritis and hipocalcaemia has been observed in adult cases.

Symptomatology shown by patients diagnosed with giardiasis has varied, obtained results being presented lower. The most frequent biliary-digestive symptoms have been: abdominal pain (83,6%), especially diffuse (63,2%), followed by loss of appetite (76,8%) and pain on palpation (60,2%), especially in the right hypochondrium (42,2%). Amongst neuro-physical symptoms, on giardiasis affected patients, most frequent has been asthenia (74%), followed by headaches (51,4%), dizziness (14,4%), restlessness (10,2%). Nettle rash has been the most common allergic symptom (18,2%), especially on children less than 1 year old (100%).

Paraclinical examinations done on giardiasis affected patients have shown pathological modifications of eosinophils, VSH, TGO, TGP, glycemia.

Coproparasitological examinations performed on patients with giardiasis have shown the presence of parasital infestations associated with *Trichocephalus trichura* on 6 patients and with *Hymenolepididae* and *Enterobius Vermicularis* on 10 patients.

Human lambliazis with universal spreading is characterised through epidemics with variable surface in some countries, between 1 and 20 % of the population (Dancinger, 1975).

In countries with continuous development, including our country, the disease has a relatively high prevalence on children who frequent diverse

collectivities (nursery, kindergarten, schools) facilitating the transmission of the disease to family members (Radulescu, 1992).

Prevalence of giardiosis in the world estimated in 1965 to 7.2% has a increased variability, depending on many agents, such as: age (maximum incidence is in the 1-3 years age category, capable of reaching 85%); source environment (most frequent in collectivities – 5.4 to 78%, comparative to family environment – 1.5 to 21 %), social and economical level, geographical area (Gillon, 1984).

According to Steriu (2003), *Giardia duodenalis* infects all the age categories, prevalence in the world varies between 2 and 25 %, higher in urban collectivities and especially on children in the first year of life.

In our country different percents are circulated, up to 60% on children, but the experience of the Parasitology Laboratory of Cantacuzino Institute shows net inferior numbers, under 50% (Vasile-Bugarin and Vasiliu, 2003).

CONCLUSIONS

During the epidemiological, clinical and paraclinical research performed within the Infectious Diseases Clinic of Oradea, Gastroenterology Ward, we have obtained the following results:

- ⇒ On 20.098 interned patiens from the Infectious Diseases Clinic of Oradea, the incidence of giardiosis has been 8,29% with monthly limits between 0.0% and 17.1%; the infection has had a high incidence on children between 5 and 14 years – 13.5%, and adults between 25 and 34 years -18,4%, and 35 and 44 years - 17,5%; 65,67% of the positive patients come from urban environment and 34,33% from rural environment;
- ⇒ Clinical and paraclinical investigations performed on patients interned in the Infectious Diseases Clinic of Oradea, Gastroenterology Ward, have shown as follows:
 - ⊗ Patients have shown frequently on internement: abdominal pain (83,6%), especially diffuse (63,2%), followed by loss of appetite (76,8%) and pain on palpation (60,2%), especially in the right hypochondrium (42,2%), asthenia (74%), headaches (51,4%), nettle rash has been the most common allergic symptom (18,2%);
 - ⊗ Main raised sanguin hematologycal and biochemical parameters in giardiosis infected patients have been: eosinophils, VSH, transaminase (TGO, TGP), glycemia and total bilirubin;
- ⇒ Giardiosis has evolved frequently associated with other digestive parasitoses: on hospitalised patients – with: trichocephalosis, cestodosis (Hymenolepididae) and Enterobius vermicularis.

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