

CLINICAL EPIDEMIOLOGICAL STUDY OF ACUTE TOXOPLASMOSIS IN BIHOR COUNTY BETWEEN 2011-2012

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Abstract

The aim of the paper was to determine IgM and IgG toxoplasma antibodies in women at procreation age susceptible of *Toxoplasma gondii* infection and IgA antibodies in patients with acute phase positive antibodies. Their dynamic evolution over 12 months was monitored. Within the period 01.01.2011-31.12.201, most cases of acute toxoplasmosis were diagnosed in April (20%), the family doctor having an important role in guiding the patients to make analyzes. The most affected range was the age group of 26-30 years with 36.36% of diagnosed cases, followed by the group 21-25 years with 29%. The optimum period of time necessary to achieve the maximum level of protective IgG antibodies was between 3-6 months since screening(56.3%).

Keywords: toxoplasmosis, toxoplasma gondii antibodies,

INTRODUCTION

Intracellular parasite *Toxoplasma gondii* is the etiologic agent of an anthroozoonosis, known as toxoplasmosis. It belongs to the subfamily Toxoplasmatinae, Sarcocystidae family, suborder Eimeria, order Eucoccidia, subclass Coccidia, class Sporozoites, phylum Apicomplexa. (Joynson D.H.M., T.G. Wreghitt , 2001)

The parasite was discovered in 1900 by Laveran, its description being made by Manceaux and Nicolle at Pasteur Institute in Tunisia in 1908. The first outbreak of toxoplasmosis was described by Kean and collaborators in 1969. (Cosoroaba I., 2005; Junie M., C.I. Sasca, 1997; Nicolle C, L. Manceaux , 1908)

The first adult case with *Toxoplasma gondii* infection was reported in 1940. (Sukthana Y. , 2006)

Definitive host, which holds the sexual cycle of the parasite *Toxoplasma gondii* is represented by the feline, being toxoplasma reservoir, and the intermediate hosts represented by mammals and birds serve as asexual multiplication cycle.

The seroprevalence of toxoplasma gondii infection varies widely throughout the world, with values between 0% in small places in Canada to 94% in Costa Rica. (Feigin R, et all, 2004)

The seroprevalence of the infection in the United States of America is higher in Miami (35%) than in Boston (14%). (Bujor Moraru M, C. Al. Ispas, 2011)

Contamination can be carried out in four ways:

- with *Toxoplasma gondii* cysts by consuming undercooked meat or unpasteurized milk

- with *Toxoplasma gondii* oocysts through contact with cat manure or contaminated objects or consumption of unwashed raw vegetables: vegetables, fruit

- transplacental transmission of tachyzoites

- through blood transfusions containing tachyzoites, by transplants of organs with cysts and through contaminated instruments. (Palmer S.R., Lord Soulsby, D.I.H. Simpson, 2005; Feher J, G. Lengyel, 2001; Kleegman R.M., et all, 2007; Mandell G.L., J.E. Bennett, R. Dolin, 2005; Metea-Stefanescu D.et all, 2003; Beers H. Mark, Porter S. Robert, 2006; Szalka A, et all, 2005; Zanc V., 2001)

The contamination of the hands with cats' fecals is an important risk factor for the infection(Torda A., 2001) .

OBJECTIVES

Determination of serology (IgM, IgG toxoplasma) in women at the age of procreation, likely to be infected with *Toxoplasma gondii* and in those that have positive IgA and IgM values.

Following the evolution of IgM, IgG, IgA dynamically over 12 months.

Studying the signs and symptoms of acute infection with *Toxoplasma gondii* and their evolution in dynamics (the time of adenopathies occurrence, their location, their persistence duration).

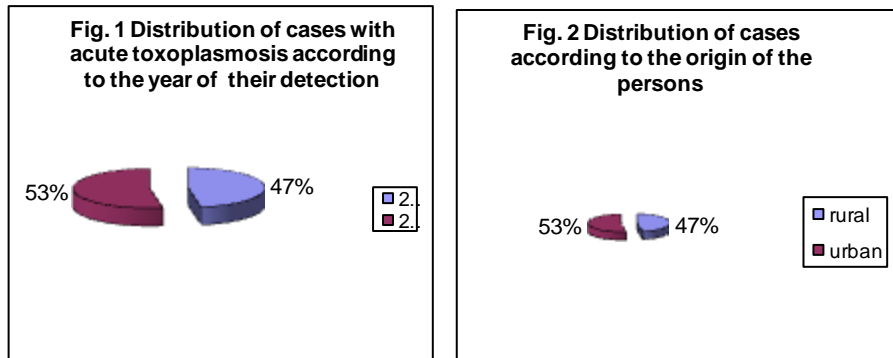
MATERIAL AND METHOD

The study included 217 women who presented themselves at the Infectious Diseases Clinic of Oradea between 01.01.2011-31.12.2012, to detect the infection with *Toxoplasma gondii*. The reason was the occurrence of adenopathies with various locations specific to *Toxoplasma gondii* infection, impossibility of conception or stopped pregnancies in evolution in their pregnancy history.

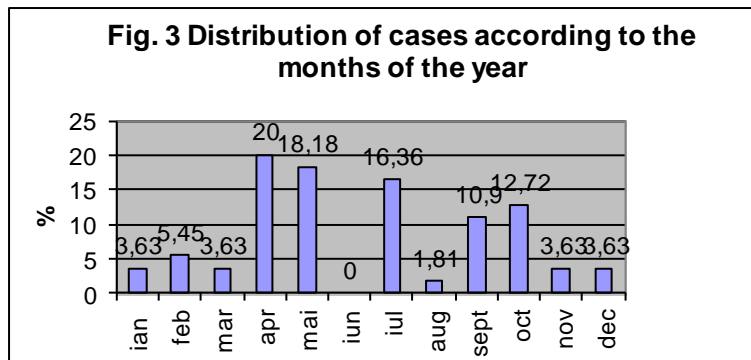
By MEIA (Microparticle Enzyme Imunoassay) method values of IgM and IgG antibodies were determined, and by the EIA (Enzyme Immunoassay) method, those of IgA.

RESULTS AND DISCUSSION

Yearly distribution of cases of acute toxoplasmosis, showed a slight increase in cases in 2012 compared to 2011. No significant differences were found on the backgrounds of persons infected with *Toxoplasma gondii*. (Figure 1, Figure 2)

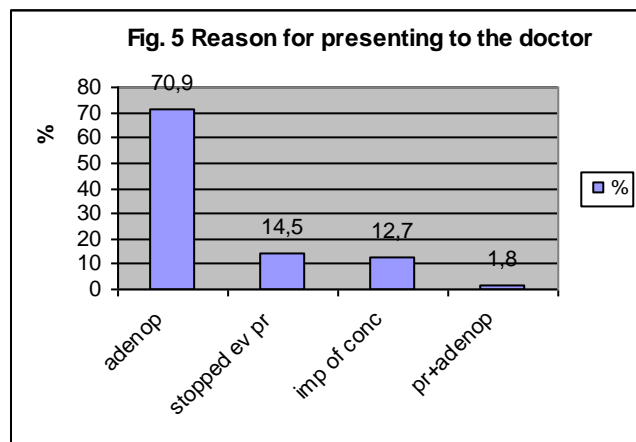
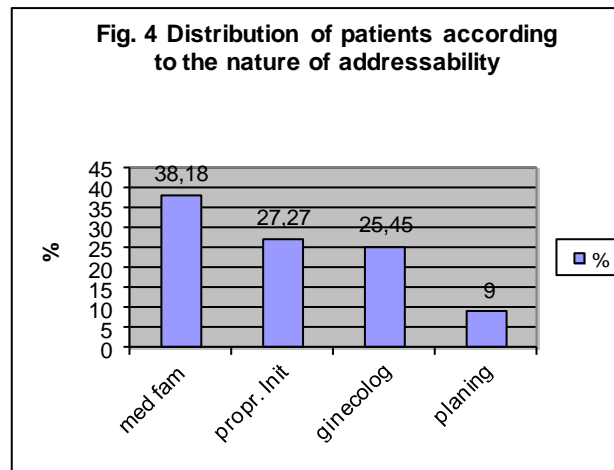


The distribution of cases by months during the two years under study, shows an increase number of detected cases in April (20%) and May (18.1%). July must be also mentioned with a positivity of toxoplasmosis in 16.36% of cases. (Figure 3)



A great importance in identifying cases of acute toxoplasmosis in women at the age of procreation have been had by the family doctors, a percentage of 38.18% of the cases were directed to infectious diseases clinics by them. 27.27% of diagnosed patients presented at their own initiative, not neglecting the importance of gynecologists to inform the patients about the risk of infection with this parasite. Lately, there is given an increased importance to family planning offices, 9% of people diagnosed with acute toxoplasmosis being guided by them. (Figure 4).

The main reason for presentation to the doctor of these patients was the appearance of adenopathies with different locations, characteristic to the infection with *Toxoplasma gondii* (70.9%). Other reasons for going to the doctor are: impossibility of conception (12.7%) stopped evolving pregnancies (14.5%), stopped evolving pregnancy due to the presence of adenopathies (1.8%) (Figure 5)



At a rate of 36.3% of diagnosed cases, the time required for the negativization of acute phase antibodies (IgM toxoplasma) was between 3-6 months since screening. It must be mentioned the range 6-9 months with a percentage of 21.8% of cases.

Analyzing the time for the negativization of IgA antibodies in diagnosed persons, we found that at a rate of 36.3% of cases, the range was between 3-6 months since screening.

The maximum level of protective Toxoplasma IgG antibodies was achieved at a rate of 56.3% of the cases in the range 3-6 months since screening. At a rate of 23.6% of cases, the maximum level of protective antibodies was achieved in 1-3 months range from detection. At a rate of 3.6% of cases, the maximum level of IgG was performed at 4 weeks since screening.

Distribution according to the age of the patients showed that 36.36% were diagnosed within the range 26-30 years. The range 21-25 years must be also mentioned with 29% of cases.

CONCLUSIONS

Most cases of toxoplasmosis were diagnosed within the period 01.01.2011-31.12.2012 in April (20%), followed by May (18.1) and July (16.36%)

No significant differences were found on the backgrounds of the patients.

Distribution by age of cases showed that the most affected range was 26-30 years with a percentage of 36.36% of cases.

The family doctor had an important role in guiding women to submit themselves to testing.

The most common reason for presentation to the doctor of the persons diagnosed with acute toxoplasmosis was the presence of adenopathies.

The time required to achieve the maximum optimal Toxoplasma IgG was between 3-6 months since screening (56.3%)

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