Research Article *ISSN: 2277-8713*
B Nagaraja, IJPRBS, 2012; Volume 1(3): 222-227 *IJPRBS*

PREVALENCE OF TOXOPLASMOSIS AMONG ANTENATAL WOMEN WITH BAD OBSTETRICS HISTORY

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Accepted Date:

18/07/2012

Publish Date:

27/08/2012

Keywords

Toxoplasmosis,

Bad Obstetric History,

Abortions

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Abstract

Toxplasmosis is an important zoonotic disease caused by protozoan parasite *Toxoplasma gondii*. Transmission of the disease is mainly by ingestion of food or water contaminated with oocysts. Congenital toxoplasmosis occurs from the transplacental passage of the parasite from mother to fetus. Diagnosis of toxoplasmosis can be established by the direct detection of the parasite or by serological methods. Among 150 women with BOH 14 (9.33%) were positive for IgM antibodies to *T. gondii*. Highest percentage of sero-positivity was observed in the cases of abortions (11.11%) followed by cases with history of IUD (7.27 %). All antenatal cases with BOH are routinely screened for toxoplasmosis so that early diagnosis and appropriate intervention of these infections will help in proper management and fetal outcome.

ISSN: 2277-8713
IJPRBS

INTRODUCTION

Toxoplasmosis is caused by a coccidian protozoan parasite *Toxoplasma gondii.* Humans and other warm-blooded animals are its intermediate hosts. The infection has a worldwide distribution. Approximately one-third of all humanity has been exposed to this parasite. Although usually asymptomatic in immunocompetent adults, it can cause severe disease manifestations and even death in immune-compromised patients. If acquired during pregnancy, it can cause various congenital anomalies in the child.

Several studies in India showed the sero-prevalence of toxoplasmosis as 2.9% to 42.5% in women of reproductive age, the lowest being in the northern parts of India and the highest in the south. [1] In a study conducted in 2005-06, a seroprevalence of 15.33% has been reported in pregnant women in India.[2] Infection may be congenitally or postnatally acquired. About one-third of all the women who acquire infection with *T. gondii* during pregnancy transmit the parasite to the fetus, and the rest give birth to normal uninfected babies. The frequency of congenital transmission varies considerably depending on the time, during gestation, when the mother became infected. Congenital infection occurs only when a woman becomes infected during pregnancy. Congenital infections acquired during the first trimester are more severe than those acquired in the second and third trimesters. Only a small proportion (20%) of women infected with *T. gondii* develop clinical signs of infection. Early maternal infection (first and second trimesters) may result in severe toxoplasmosis and can result in the death of the fetus in utero and spontaneous abortion. By contrast late maternal infection (3rd trimester) usually results in a normal appearing newborn.

A previous history of pregnancy wastage and serological reactions for toxoplasmosis during current pregnancy must be considered while managing bad obstetric history cases so as to reduce adverse fetal outcome. Early diagnosis and appropriate intervention of toxoplasmosis will help in proper management and fetal outcome. In view of this, the present study was carried out to observe the seroprevalence of

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B Nagaraja, IJPRBS, 2012; Volume 1(3): 222-227
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IJPRBS

toxoplasmosis in antenatal women with bad obstetric history (BOH).

MATERIALS & METHOD

A total of 150 blood samples were collected from the antenatal women with bad obstetric history as test group and 30 samples were collected from antenatal women with previous normal delivery as control group. Among test group, 90 samples were from antenatal women with history of repeated abortions, 55 from cases with history of intrauterine death, 4 from premature delivery and one from case with history of congenital anomalies. All the samples were screened for specific IgM antibodies to *Toxoplasma gondii*, by ELISA method using 'Toxo IgM Kit' (Immunovision).

RESULTS & DISCUSSION

Of the total 180 samples tested, 150 were from women with BOH and the remaining 30 were from the women with previous normal deliveries. Of the test group, 14 (9.33%) were positive whereas in control group, none of the samples were positive for IgM antibodies to *T.gondii.*(Table 1) Highest percentage of sero-positivity was observed in the cases of abortions (11.11%) followed by cases with history of IUD (7.27 %). (Table 2) Toxoplasmosis is more prevalent in rural population (9.3%) than in urban population (6.9%).

Discussion

Toxoplasma infection during pregnancy may lead to transmission to the fetus and results in abortion, intrauterine death, preterm delivery and congenital malformations. The diagnosis of toxoplasmosis during pregnancy is based on maternal serology due to asymptomatic nature of the disease.

In India, pregnant women belonging to low socioeconomic group may be exposed to a variety of infections due to poor environment and hygiene. Maternal infections such as toxoplasmosis can be considered as a significant factor in the causation of poor pregnancy outcome.

Dacosta J *et al* screened 682 women in Mumbia and found only 2.9% had specific IgM antibodies to *T.gondii.* [3] Yahodhara *et al* found that 13.1% were positive. [4] Shashi Copra *et al* studied prevalence of toxoplasmosis , rubella and CMV infections in 200 pregnant women with BOH in Amritsir during the year 2004. Specific toxoplasma IgM antibodies were found in

85 women (42.5%). [5] Navin Thapliyal *et al* found IgM antibodies for Toxoplasma in 20% of cases in Kumaon region but the test sample size was very small – 20 women were tested.[6] Rajendra B Surpum *et al* in Nagpur region and found that the prevalence of toxoplasmosis was 14.66%. [7]

The present study demonstrated a strong association between toxoplasmosis and BOH in women. It is evident that maternal infections like toxoplasmosis play a critical role in pregnancy wastage and their occurrence in patients with BOH is a significant factor. A previous history of pregnancy wastage and the serological reaction for toxoplasmosis during current pregnancy must be considered while managing the BOH cases, so as to reduce the adverse fetal outcome. Detection and timely treatment of toxoplasmosis can prevent morbidity and mortality of the infants born to such mothers. All antenatal cases with BOH are routinely screened for toxoplasmosis so that early diagnosis and appropriate intervention of these infections will help in proper management and fetal outcome.

Table 1

The results among test and control groups.

Group	No. of samples tested	No. of Positives	Percentage
BOH	150	14	9.33%
Control	30	Nil	Nil

ISSN: 2277-8713
IJPRBS

Table 2

The results among various groups of bad obstetric history.

Bad Obstetric History	No. of samples Tested	No. of Positives	Percentage
Abortions	90	10	11.11%
IUD	55	4	7.27%
Pre-term deliveries	4	0	-
Congenital anomalies	1	0	-
	150	14	9.33%

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