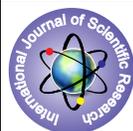


Seroprevalance of TORCH Infection in women with Bad Obstetric History



Medical Science

KEYWORDS : Bad obstetric history(BOH), ELISA, Pregnancy wastage, TORCH infection

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ABSTRACT

Introduction: Bad obstetric history (BOH) implies previous unfavourable foetal outcome in terms of two or more consecutive spontaneous abortion, history of intrauterine foetal death or growth retardation, still births, early neonatal death and/or congenital anomalies. Maternal infections transmissible in utero at various stages of gestation lead to recurrent pregnancy wastage. Infections caused by toxoplasma, rubella virus, cytomegalovirus (CMV) and Herpes simplex virus (HSV) are together called TORCH infection .

Materials and Methods: After obtaining consent from total 120 pregnant women with bad obstetric history and 64 pregnant women without bad obstetric history, in sir.t.hospital, Bhavnagar, TORCH IgM and IgG antibodies were detected from the serum by ELISA test kit (DSI) .The optical density will read in the ELISA reader and results are presented as positive or negative for the antibody titer, for each of the infectious agents tested.

Results: Seropositivity for toxoplasma is 36.66 %, rubella 27.50%, cytomegalovirus 36.66 %, HSV 1 and HSV 2 infection are 5% and 7.5% respectively for IgM and for IgG positivity rate for toxoplasma is 25.83%, rubella is 32.5%, cytomegalovirus is 46.66%, for HSV 1 and HSV 2 it is 1.08% and 1.33% respectively in patients with bad obstetric history. In control patients this prevalence is low..

Conclusion: Seropositivity is significantly higher in women with BOH as compared to patients without BOH. A previous history of pregnancy wastage and the serological reaction for TORCH infections during current pregnancy must be considered while managing BOH cases so as to reduce the adverse fetal outcome.

INTRODUCTION

TORCH is an acronym for a group of infectious diseases that can cause illness in pregnant

women and may cause birth defects in their newborns. The TORCH test or TORCH panel, measures the presence of antibodies and their level of concentration in the blood. The name of the test comes from the initial letters of the disease categories¹.

These infections usually occur before the woman realizes that she is pregnant or seeks medical attention. The primary infection is likely to have a more important effect on fetus than recurrent infection and may cause mild maternal morbidity but have serious fetal consequences. The ability of the fetus to resist infectious organisms is limited and the fetal immune system is unable to prevent the dissemination of infectious organisms to various tissues².

These maternal infections with adverse outcome are initially inapparent or asymptomatic and are thus difficult to diagnose on clinical grounds. Therefore, diagnosis of

acute TORCH infection in pregnant women is usually established by demonstration of specific IgM antibodies. This study reports the results of screening for IgG and IgM antibodies against TORCH complex in a group of patients with bad obstetric history and without Bad obstetric history and aimed to evaluate the incidence of TORCH infection in pregnancy wastage in women with Bad Obstetric history(BOH)¹⁻³.

MATERIALS AND METHODS

TORCH IgM and IgG antibodies were detected from the serum of patients by ELISA test kit (DSI) .The optical density will read in the ELISA Reader and Results are presented as positive or negative for the antibody titer, indicating the presence or absence of IgM and IgG antibodies for each of the infectious agents tested.

RESULTS

Out of total 184 cases,120 are BOH cases and 64 are healthy controls. Seropositivity rate in women with BOH is significantly higher than in normal healthy controls. (P=0.0006)

Table 1. The seropositivity of TORCH agents for IgM and IgG Infection

| TORCH agent | Seropositivity BOH Cases (n=120) | | Seropositivity Controls (n= 64) | | Seropositivity BOH Cases (n=120) | | Seropositivity Controls (n= 64) | |
|-----------------|----------------------------------|---------|---------------------------------|---------|----------------------------------|---------|---------------------------------|---------|
| | No | Percent | No | Percent | No | Percent | No | Percent |
| | IgM Infection | | | | IgG Infection | | | |
| Toxoplasma | 44 | 36.66% | 4 | 6.25% | 31 | 25.83% | 6 | 9.37% |
| Rubella | 33 | 27.50% | 3 | 4.68% | 39 | 32.5% | 1 | 1% |
| Cytomegalovirus | 44 | 36.66% | - | - | 56 | 46.66% | 6 | 9.37% |
| HSV 1 | 06 | 5% | - | - | 13 | 1.08% | 2 | 3.12% |
| HSV2 | 09 | 7.5% | - | - | 16 | 1.33% | - | - |

Results obtained from TORCH study for Toxoplasma, Rubella, CMV, and HSV 1 and 2 infection (IgG and IgM) are presented in Table 1.

Table 2-TORCH agents with different presentations of BOH cases for IgM and IgG infection

| BOH | Toxoplasma | | Rubella | | Cytomegalo Virus | | HSV 1 | | HSV 2 | |
|---------------------------------|------------|------------|------------|------------|------------------|------------|-----------|-----------|------------|-----------|
| | IgM | IgG | IgM | IgG | IgM | IgG | IgM | IgG | IgM | IgG |
| | No(%) | No(%) | No(%) | No(%) | No(%) | No(%) | No(%) | No(%) | No(%) | No(%) |
| Abortion (n=38) | 18 (47.36) | 16 (42.10) | 05 (13.15) | 5 (13.15) | 13 (34.21) | 8 (21.05) | 02 (7.14) | 4 (10.52) | 04 (10.52) | 8 (21.05) |
| IUGR (n=28) | 08 (28.57) | 2 (7.14) | 12 (42.85) | 12 (42.82) | 03 (10.71) | 9 (32.14) | 02 (7.14) | 3 (10.71) | 03 (10.71) | 4 (14.28) |
| IUD (n=12) | 05 (41.66) | 8 (66.66) | 04 (33.33) | 8 (66.66) | 02 (16.66) | 8 (66.66) | 00 | 2 (16.66) | 01 (8.33) | 2 (16.66) |
| Preterm Labour (n=08) | 05 (62.5) | 00 | 00 | 1 (12.5) | 06 (75) | 7 (87.5) | 01 (12.5) | 3 (37.5) | 01 (12.5) | 00 |
| Early neonatal Death (n=18) | 06 (33.33) | 5 (27.77) | 06 (33.33) | 4 (22.22) | 10 (55.5) | 14 (77.77) | 01 (5.55) | 1 (5.5) | 00 | 2 (25) |
| Congenital malformations (n=16) | 02 (12.5) | 00 | 06 (37.5) | 9 (56.25) | 10 (62.5) | 10 (62.5) | 00 | 00 | 00 | 00 |
| Total-120 | 44 | 31 | 33 | 39 | 44 | 56 | 06 | 13 | 09 | 16 |

The highest seropositivity in IgM infection ,in cases of repeated abortions was seen with Toxoplasma gondii (47.36%). In intrauterine growth retardation, Rubella (42.85%) showed highest seropositivity followed by Toxoplasma (28.57%). In intrauterine death and Early neonatal death toxoplasma showed highest seropositivity of 41.66% and 33.33% respectively. In Preterm Labour cases, CMV and Toxoplasma showed highest seropositivity of 75% and 62.5% respectively. In congenital malformation seropositivity with rubella was predominant (37.5%).

There are total 28 cases found with mixed infection in patients with BOH for IgM infection and 35 mixed infection cases are found in BOH patients for IgG infection.

The maximum number (52%) of BOH cases belonged to the age group of 25-30 years (range 20 to 35 years) and maximum number of positivity for TORCH agent is also found in this age group.

DISCUSSION

Maternal infections play a critical role in pregnancy wastage and their occurrence in patients with BOH or complicated pregnancy is a significant risk factor ⁴⁻⁶.

Women affected with any of these diseases during pregnancy are at high risk for miscarriage, stillbirth, or for a child with serious birth defects and/or illness. Thus, these tests are performed before or as soon as pregnancy is diagnosed to determine the mother's exposure to Toxoplasma, Rubella virus, Cytomegalovirus and Herpes Simplex virus and the necessary precautions be taken^{7,8}.

The seroprevalence of Toxoplasma gondii infections ranges between 7.7 and 76.7% in different countries (United Kingdom, 7.79.1%;Norway, 10.9%; India, 45%; Brazil, 50-76 % and Nigeria 75.4 %).The seroprevalence of Toxoplasma IgM/IgG among pregnant women with BOH in our study was 36.66%/ 25.83% respectively^{9,10}.

Studies have proved that persistence of encysted forms of Toxoplasma in chronically infected uteri, and their rupture during placentation, lead to infection of the baby in the first trimester and often to recurrent miscarriages^{2,6,12}.

In our study, the seroprevalence of the BOH cases for Rubella IgM/IgG were 27.5% /32.5% respectively. Surpam RB, et al. and Yasodhara, et al. have also reported overall IgM antibody positivity of 4.66 and 6.5% in cases of BOH while other workers reported seropositivity ranging from 4-17.7%. WHO estimates that, worldwide, more than 1 lakh children are born with congenital rubella syndrome each year, most of them in developing countries^{2,3,12,13}.

Primary CMV infection in pregnancy has a higher incidence of symptomatic congenital infection and fetal loss. The present study shows seropositivity rate of 36.66%/46.66% for CMV IgM/IgG in women with BOH. Several studies have reported between 84.5-95% prevalence of CMV IgG among pregnant women in Turkey^{10-12,14-16}.

The Seropositivity rate for HSV IgM/IgG among BOH and control patients in our study was 5%/1.08% and 7.5%/1.33% respectively^{4,6,9}. Turbakar, et al. and Janak k, et al. reported a seropositivity rate of HSV IgM as 3.6 and 3.3%^{12,17}.

CONCLUSION

The present study demonstrates a strong association between the infectious agents (Toxoplasma, Rubella, CMV and HSV) and Bad Obstetric History. It is therefore recommended that all antenatal cases with such history should be routinely screened for these agents. Early diagnosis will help in proper management of the cases. This study also emphasizes the need for immunization in prospective mothers and adolescent girls who have not received MMR vaccine in their childhood.

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