

Seroprevalence of TORCH Infections in Women with Bad Obstetric History in North West Region of Rajasthan

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Abstract: Bad obstetric history(BOH) is specific to women specially during childbearing age, causes by TORCH group (Toxoplasma gondii, Rubella virus, Cytomegalovirus (CMV), Herpes simplex virus) and others agents like Chlamydia trachomatis, Treponema pallidum, Neisseria gonorrhoeae, HIV,etc The objective of the study is to evaluate the incidence of TORCH infections in pregnancy wastage in women with bad obstetric history (BOH).The study included 200 women aging from 15 to over than 46years with bad obstetric history and 75 clinically normal women with previous normal full term deliveries. Serological evaluation for TORCH infections was carried out by IgM ELISA method. Seropositivity for toxoplasma was 27.33%, rubella 21.66%, cytomegalovirus 34.33% and herpes simplex virus 17.66 with high frequency of stillbirths 94.11 %, Maximum number of cases of abortion (27.27%), intrauterine growth retardation (9.37%), intrauterine death (17.64%) and preterm labor (18.18%) was associated with toxoplasma infection. Seropositivity in women with BOH is demonstrates a strong association between the infectious agents (Toxoplasma, Rubella and CMV) 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.

Keywords: bad obstetric history, TORCH infections, pregnancy wastage.

INTRODUCTION

Miscarriages are the most common complications of pregnancy Bad obstetric history (BOH) implies previous unfavourable fetal outcome in terms of two or more consecutive spontaneous abortions, early neonatal deaths, stillbirths, intrauterine fetal deaths, intrauterine growth retardations and congenital anomalies[1]. Approximately 15% of all clinically recognized pregnancies are spontaneously aborted[3]. An infectious etiology for infertility or repeated abortions suggests an easily treatable solution for an otherwise lengthy and expensive treatment for the same Maternal infections transmissible in utero at various stages of gestation lead to recurrent pregnancy wastage. Infections caused by TORCH – toxoplasma, rubella virus, cytomegalo virus (CMV) and herpes simplex virus (HSV) – is the major cause of BOH 1.Infections by TORCH agents in women are usually asymptomatic and chronic[2].

METHODS

A total of 317 women were investigated including 252 women with Bad Obstetrician History (BOH), whom they suffering from previous abortions, 2-3 pregnancy wastages, intrauterine deaths, preterm deliveries, intrauterine growth retardation, unexplained early neonatal deaths and congenital abnormalities and some women included the group with recent abortion. Second group: involve 65 women without previous or recent abortion, or any signs BOH[3].

From each woman 3 mL of venous blood was collected in a container with strict aseptic precautions Sera were extracted after centrifugation and kept at -20 0 C till to use. The serum was used for serological evaluation for TORCH infections. IgM antibodies for these infections were detected by ELISA test kit[4].

Informations	Number	Informations	Numbers
Total number examined withBOD	252	Type of delivery	
		Normal delivery	176
		Lower Segment Caesarian Section	38
		No delivery (Pregnant)	38

RESULTS

The history of the 252 BOH cases consisted of abortion in 86 (34.12 %), intrauterine growth retardation in (IUGR) in 20 (7.93 %), intrauterine death in 17 (11.33%), premature labor in 11 (7.33%), early neonatal death in 25(16.66%), and congenital malformation in 21(14%).The maximum number (52%) of BOH cases belonged to the age group of 26-30 years (range 20 to 38 years).

Out of 252 BOH cases 171(64.33%) and out of the 75 healthy controls 6(8%) were serologically positive for one of the TORCH infections. Seropositivity rate in women with BOH is significantly higher than in normal healthy controls. (P=0.0006). The examination of their sera reveals the following results: for Toxoplasma antibodies 27 sera show positivity of 47.36% for IgG and 23.68 % for IgM with high frequency of IgG (55.55) in sera of women, In BOH cases the seropositivity for toxoplasma gondii was

14.66%, HSV 8.66%, CMV 5.33 and rubella virus 4.66%. While in the control cases the seropositivity for toxoplasma, rubella and CMV was 1.33% and for HSV 4%. The difference in seropositivity of toxoplasma between BOH cases and control cases was statistically significant. (P=0.0091) (Table1).

The highest seropositivity in cases of repeated abortions was seen with Toxoplasma gondii (27.27%). In intrauterine growth retardation, toxoplasma (9.37%) showed highest seropositivity followed by rubella (6.25%). In intrauterine death and preterm labor toxoplasma showed highest seropositivity of 17.64% and 18.18% respectively. In early neonatal death cases, rubella and HSV showed highest seropositivity (8% each). In congenital malformation seropositivity with HSV was predominant (9.52%). One case of mixed infection was found in those with history of abortions (Table 2).

Table-2: The seropositivity of TORCH agents

TORCH Agent	IgG Number (%)		IgM Number (%)		All Positive (%)	total
	Positive	Negative	Positive	Negative		
<i>Toxoplasma Gondii</i>	54(20.63) a	198(79.37) a	20(7.14) a	232(92.86) a	74(26.98)a	
<i>Cytomegalovirus</i>	88(31.74) b	164(68.34) b	5(3.17) b	247(96.83) b	93(34.92) b	
<i>Rubella</i>	47(19.44) c	205(80.66) c	2(1.58) c	250(98.42) c	49(21.03) c	
<i>HHSV-2</i>	6(2.38) d	245(97.62) d	34(13.33) d	218(86.77) d	40(16.26) d	

One case showed mixed infection with toxoplasma and herpes simplex virus

of our cases with recurrent abortions compared with 12% in Bhatia *et al.* s [9] study.

DISCUSSION

The present study demonstrates a strong association between the infectious agents (Toxoplasma, Rubella and CMV) and BOH in women specially among young aged women[5] It is evident that maternal infections play a critical role in pregnancy wastage and their occurrence in patients with BOH is a significant factor. Persistence of encysted forms of toxoplasma in chronically infected uteri, and their subsequent rupture during placentation lead to infection of the baby in the first trimester and often to recurrent miscarriages. In the present study T. gondii, which is a known etiological agent in recurrent pregnancy wastage was found in 14.66% pregnant women with BOH [6]. This is similar to what has been reported earlier and this reflects degree of environment contamination with the oocysts of cat[7], the final host and water contamination with the infective especially in area when water chlorination and filtration process were not continuously used[8].

Rubella is a mild viral illness in children but can occasionally infect adults. The rate of sero-positive of RV in the present study is high 21.2% that contributing 1.58 % of rubella IgM antibodies and 19.44 % of Rubella IgG antibodies. The later may considered protection against previous infection, because it is fact that Rubella infection mostly produce lifelong immunity[10]. Primary virus infection during pregnancy may cause fetal damage. In our study seropositivity for rubella was 4.66% while other workers report seropositivity ranging from 4 to 17.77% [10,11].

Interpretation of high rate of sero positive CMV 34.92 % required understanding the fact, that CMV has the capability to persist in its human host indefinitely as latent infection in several glands and the kidneys (Collenberge *et al.*, 2006)¹². The result of the present study is disagree with that recorded in India by (Rubina *et al.*,2004)¹³, whom they record 15.98 % of seropositive CMV, the difference may be due to very large score of sampling 1918 samples. The result of CMV IgM is not agree those recorded by whom they record the following rates (0 % and 9.2 %) respectively[14-15].

It was suggested that pregnancy may reactivate the latent virus leading to further reproductive wastages. Seropositivity rate for HSV IgM among BOH patients in our study was 8.66%, similar to what has been reported previously [16].

CONCLUSION

The present study demonstrates a strong association between the infectious agents (Toxoplasma, Rubella and CMV) with recurrent abortion, intrauterine growth retardation, intrauterine death, preterm labor, early neonatal death, and congenital malformation. Previous history of pregnancy wastages and positive serological reactions during the current pregnancy helps management of these cases in order to reduce adverse fetal outcome. It is therefore recommended that all antenatal cases with such history should be routinely screened for these agents. This study also emphasizes the need for immunization in prospective mothers and adolescent girls who have not received MMR vaccine in their childhood.

REFERENCES

1. Canessa, A., Pantarotto, F., Miletich, F., Russo, A., Gotta, C., Bozzuffi, P. M., ... & Terragna, A. (1987). Antibody prevalence to torch agents in pregnant women and relative risk of congenital infections in Italy (Liguria). *Biological research in pregnancy and perinatology*, 8(2 2D Half), 84-88.
2. McCabe, R., & Remington, J. S. (1988). Toxoplasmosis: the time has come.
3. Malhotra, V. L., Bharadwaj, Y., Lakshmy, A., Kapur, H., & Prakash, K. (1991). Comparison of enzyme linked immunosorbent assay and indirect haemagglutination test in serologic diagnosis of toxoplasmosis. *The Journal of communicable diseases*, 23(2), 154-156.
4. Langer, H. (1963). Repeated congenital infection with *Toxoplasma gondii*. *Obstetrics & Gynecology*, 21(3), 318-329.
5. Sood, S., Pillai, P., & Raghunath, C. (1994). Infection as a cause of spontaneous abortion with special reference to *Toxoplasma gondii*, rubella virus, CMV and *Treponema pallidum*. *Indian J Med Microbiol*, 12, 204-7.
6. Yelikar, K., & Bhat, S. (1996). Maternal toxoplasmosis in repeated pregnancy loss. *J Obstet Gynecol India*, 46, 29-31.
7. Newton, E. R. (1999). Diagnosis of perinatal TORCH infections. *Clinical obstetrics and gynecology*, 42(1), 59-70.
8. Zargar, A. H., Wani, A. I., Masoodi, S. R., Laway, B. A., Kakroo, D. K., Thokar, M. A., ... & Bashir, M. I. (1999). Seroprevalence of toxoplasmosis in women with recurrent abortions/neonatal deaths and its treatment outcome. *Indian journal of pathology & microbiology*, 42(4), 483-486.
9. Collenberg, E., Ouedraogo, T., Ganamé, J., Fickenscher, H., Kynast-Wolf, G., Becher, H., ... & Tebit, D. M. (2006). Seroprevalence of six different viruses among pregnant women and blood donors in rural and urban Burkina Faso: a comparative analysis. *Journal of medical virology*, 78(5), 683-692.
10. Bhatia, V. N., Meenakshi, K., & Agarwal, S. C. (1974). Toxoplasmosis in south India-a serological study. *Indian Journal of Medical Research*, 62(12), 1818-1825.
11. Padmavathy, M., Gowri, M., Malini, J., Umapathy, B. L., Navaneeth, B. V., Bhatia, M., & Harle, S. (2013). Seroprevalence of TORCH infections and adverse reproductive outcome in current pregnancy with bad obstetric history. *J Clin Biomed Sci*, 3(2), 62-71.
12. Sharma, J. B., & Buckshee, K. (1992). Rubella infection: a cause of foetal wastage. *Journal of the Indian Medical Association*, 90(7), 174-175.
13. Remington, J. S., Newell, J. W., & Cavanaugh, E. (1964). Spontaneous abortion and chronic toxoplasmosis: report of a case, with isolation of the parasite. *Obstetrics & Gynecology*, 24(1), 25-31.
14. Kakru, M. D., Shaheen, R., & Nazir, A. (2004). Seroprevalence of Cytomegalovirus (CMV) in Kashmir valley-a preliminary study. *JK-Practitioner*, 11(4), 261-262.
15. Sadik, M. S., Fatima, H., Jamil, K., & Patil, C. (2012). Study of TORCH profile in patients with bad obstetric history. *Biology and Medicine*, 4(2), 95.