Original Research Article

A new light on TORCH infection among bad obstetric history cases

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Abstract

Bad obstetric history (BOH) implies previous unfavourable foetal outcome in terms of two or more consecutive spontaneous abortion, history of intrauterine foetal death, intrauterine growth retardation, still births, early neonatal death and/or congenital anomalies. Cause of BOH may be genetic, hormonal, abnormal maternal immune response and maternal infection. Recurrent pregnancy wastage due to maternal infections transmissible in utero at various stage of gestation can be caused by a wide array of organisms which include the TORCH complex (Toxoplasma gondii, Rubella virus, Cytomegalovirus, Herpes simplex virus) and other agents like Chlamydia trachomatis, Treponema pallidum, Niesseria gonorrhoeae, HIV etc. Toxoplasmosis acquired during pregnancy may cause damage to the fetus Hence, awareness of TORCH infections can go a long way in avoiding them. Extra precautions and cleanliness alone can come to aid where vaccinations are not possible. Taking a little additional care will surely help in making those nine special months truly happy and healthy.

Keywords: Bad obstetric history, TORCH.

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INTRODUCTION

Bad obstetric history (BOH) implies previous unfavourable foetal outcome in terms of two or more consecutive spontaneous abortion, history of intrauterine foetal death, intrauterine growth retardation, still births, early neonatal death and/or congenital anomalies. Cause of BOH may be genetic, hormonal, abnormal maternal immune response and maternal infection. Recurrent pregnancy wastage due to maternal infections transmissible in utero at various stage of gestation can be caused by a wide array of organisms which include the TORCH complex (Toxoplasma gondii, Rubella virus, Cytomegalovirus, Herpes simplex virus) and other agents like Chlamydia trachomatis, Treponema pallidum, Niesseria gonorrhoeae, HIV etc. Toxoplasmosis acquired during pregnancy may cause damage to the fetus. [Sharm P *et al*; 1997] Seroepidemiological studies have shown that 10-20 percent of women in childbearing age in India are susceptible to Rubella infection.[Seth P *et al*;1985] Infection with Rubella during pregnancy may lead to congential malformation in 10-54 percent of cases. The infection caused by CMV in adult is usually asymptomatic but its significance is many times increased when it occurs during pregnancy. However, the rate of primary CMV infection is significantly higher for pregnant women from low socioeconomic group. [Stagno S;1986] The mother is the usual source of transmission of HSV to the fetus or newborn. Primary HSV infection during first half of pregnancy is associated with increased frequency of spontaneous abortion, still birth, and congenital malformation.[Sergio S and Whitley RJ.;1985]. The placenta and the fetus can be infected either by transplacental transmission or by an ascending infection from the vagina. The proportion of abortion associated with infections has been reported to be 6-15% of all cases in different studies (Fretts, R *et al*, 2000) (Ahlenius *et al*; 1995). Consideration of the timing of the miscarriage is important, as different causes of

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miscarriage tend to manifest at different periods of gestation. In first trimester miscarriages, important causes include chromosomal abnormalities, which occur in about 70% of the cases (Porter, T. Scott, J;2005) maternal diseases, including poorlycontrolled diabetes mellitus (Christiansen, O *et al*; 2005),uncontrolled thyroid disease(Stagnaro-Green, A *et al*; 1990), severe systemic lupus erythematosus (Imbasciati, E *et al*;1984) and antiphospholipid syndrome (Rai, R *et al* ;1995) poor maternal lifestyle habits (including alcohol consumption, smoking and use of illicit drugs); and exposure to non-steroidal anti-inflammatory drugs around the time of conception(Li, D *et al*;2003) Second trimester miscarriages, on the other hand, are more commonly caused by specific types of congenital uterine anomalies(Lin, P 2004). cervical incompetence(Stray-Pedersen B. and Stray-Pedersen, S;1984) maternal infections (Hay, P *et al*;1994) maternal thrombophilic states, such as inherited thrombophilias (Sarig, G *et al*;2002) and antiphospholipid syndrome(Oshiro, B *et al*; 1996) and also chromosomal abnormalities which account for up to 20% of foetal losses during this period (Porter, T. Scott, J;2005). Spontaneous abortion is a new issue in terms of its social and economic impact, pregnancy loss has been attributed to several factors involved in human reproduction, genetic and uterine abnormalities, endocrine and immunological dysfunctions, environmental pollutants, psychogenetic factors and endometriosis, infectious agents, are most important causes of spontaneous abortion [Sebastian Denoj *et al*; 2008]. The rate of spontaneous abortion from foetal infection by the infectious agents like TORCH (Toxoplasma, Rubella, Cytomegalovirus, Herpes Simplex virus) is believed to range from 10-15% [Chopra Shashi *et al*; 2004]. Maternal infections play a critical role in pregnancy wastage and their occurrence in patients with Bad Obstetric History (BOH) is a significant factor (Mookerjee, N *et al*;1995). Congenital intrauterine infections have been associated with congenital abnormalities, intrauterine growth retardation and intrauterine death of the fetus, as well as late sequelae such as developmental delay, blindness and deafness of the infected child (Wong, A *et al*; 2000). Toxoplasma gondii is considered one of the most widespread parasites in the world causing abortion it is intracellular protozoan that infects humans and other warm-blooded animals [Messaritakis Ippokratis *et al*; 2008]. The organism transmitted to humans by accidental ingestion of water, food, or soil contaminated with T. Gondii oocysts or consumption of meat containing T. gondii cysts that is eaten raw or undercooked [Rosso Fernando *et al*;2008]. This disease is clinically insignificant in immunocompetent adults. The immunologic response to primary infection is followed by encystment of the parasite (latent toxoplasmosis), providing life-long immunity. Possible reactivation of latent infection in an increasingly immunosuppressed population, however, makes toxoplasmosis an important opportunistic infection In addition, toxoplasmosis has long been known as a major cause of perinatal morbidity. T. gondii infection in pregnant women can be transmitted to the fetus and cause mental retardation, blindness, epilepsy and death [Jumaian N.F;2005]. The human cytomegalovirus (CMV) is one of the major causes of congenital infections. Its clinical manifestations range from asymptomatic forms (90% of cases) to severe fetal damage and, in rare cases, death due to abortion [Paschale De Massimo *et al*;2009].Cytomegalovirus (CMV) infection during pregnancy is far more complex than other infections, due to the ability of the virus to be frequently reactivated during the child bearing age and be transmitted to the fetus inspite of maternal immunity [lone Rubina *et al*; 2004]. Rubella infection is generally an asymptomatic childhood disease but during the first trimester of pregnancy it can cause fetal death or severe congenital defects [congenital rubella syndrome] (CRS) [Abdul-Karim E.T *et al*; 2009]. Risk of rubella defects is high in infants whose mothers are infected by rubella virus in the first 16 weeks of pregnancy [M Ballal *et al*; 2007]. The mother is the usual source of transmission of HSV to the fetus or newborn. Primary HSV infection during first half of pregnancy is associated with increased frequency of spontaneous abortion, still birth, and congenital malformation. [Sergio S and Whitley RJ.;1985]. The maternal infections that are transmissible in utero at several stages of the pregnancy, can be caused by many organisms, of which the members of the TORCH complex, namely Toxoplasma gondii, Rubella virus, Cytomegalovirus (CMV), the Herpes Simplex Virus (HSV) occupy prominent positions. These infections are associated with inadvertent outcomes like multiple abortions, sterility, intrauterine foetal deaths, still births, congenital malformations and other reproductive failures, especially when they are acquired during the first trimester of the pregnancy. Since these maternal infections are initially asymptomatic and as the clinical diagnoses are unreliable, the diagnoses of these infections depend on serological evidences. The detection of the IgM antibody against TORCH is the best approach for the identification of these infections [Yashodhara P *et al*;2001]. Due to the lack of a national screening programme, there is no baseline serological data regarding the presence of an antibody in the TORCH infection during pregnancy. 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 seroconversion in paired sera or 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.

SUMMARY AND CONCLUSION

It is concluded that a previous history of pregnancy wastage and the serological reactions for TORCH infections during current pregnancy must be considered while managing BOH cases to reduce the adverse foetal outcome. Keeping consideration of the high cost of the test panel, selected tests (of the whole panel) are recommended on an individual case basis. Incorporation of rubella immunization into the national immunization schedule is recommended. Toxoplasma-associated infection can be prevented by educating the public about avoidance of ingestion of raw or insufficiently-cooked meat and poultry and keeping proper hygiene. An extensive study covering a large population should be conducted to know the seropositivity of TORCH agents and also to know the real status of these infections in BOH cases. These infections will only affect the baby if the mother catches them for the first time during her pregnancy. If she has ever had them before, her body will have antibodies to counter them. These days, most pathology labs have a TORCH panel test which will test a woman for all of these infections together. However, it is important to interpret the results correctly. A positive test does not necessarily imply an active infection in the body. It may simply mean that antibodies to the particular infection are present in the system. In other cases, where the infection is active, treatment must be started and protection used during intercourse to avoid pregnancy until one is completely cured. For other diseases which do not have a vaccine, care must be taken to avoid sources of infections – avoiding contact with cats and eating only thoroughly cooked meat can ensure protection against toxoplasmosis. If you have a pet cat, you may like to ask somebody else to dispose of the litter, since handling cat faeces poses maximum risk of toxoplasmosis infection. Similarly, safe sex measures and sexual hygiene is imperative in avoiding cytomegalovirus, syphilis, and genital herpes. Hence, awareness of TORCH infections can go a long way in avoiding them. Extra precautions and cleanliness alone can come to aid where vaccinations are not possible. Taking a little additional care will surely help in making those nine special months truly happy and healthy.

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