Original Research Article

Study of correlation of pregnancy loss with positivity of TORCH test

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Abstract

Objectives: To study the correlation of pregnancy loss with TORCH test positivity. **Method and Materials:** The study carried out at MGM Medical College at Aurangabad from Oct.2013 to April 2016. Total 75 patients were included in study. They were studied in 2 groups ; 50 patients with pregnancy loss (case) and 25 patients with term deliveries and good foetal outcome (control) **Results:** The ratio of pregnancy wastage is 1:6.3 which is mainly abortions, IUFD and Congenital anomalies. The present study shows T.gondii 56%, Rubella 84%, CMV 84% and HSV 36% positivity. IGM positivity, whuch indicate recent infection, was only 2% in T.gondii and Rubella. In the presentations abortions was seen in 71.4% with CMV and Rubella, IUFD 10.7% with T.gondii, 30% with Rubella and 30% with CMV. Presence of congenital malformation was seen in 11% with Herpes and 10.7% with T.gondii. Oligohydroamnios with IUGI seen in 14.3% with T.gondii and 9.5% with Rubella. Statistically significant high titres were seen in case group as compared to control group in T.gondii, Rubella and CMV. **Conclusion:** The commonest pattern of pregnancy wastage is abortion. Among TORCH group, Rubella and CMV IgG positivity was more common. There was significant difference in titres of case and control group

Key Words: BOH, Abortions, TORCH positivity.

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INTRODUCTION

Pregnancy is a vital event in life of every women. Pregnancy loss is frustrating and challenging problem for couples and clinician as well. Miscarriageis associated with guilt, embarrassment and depressive state. Pregnancy loss has attributed to several factors in human reproduction.

Epidemiological factors: Maternal age more than 35 years and number of previous miscarriages are two independt risk factors for further miscarriage.

Genetic factor: Parental chromosomal rearrangement occurs in approximately two to five percent of couples with recurrent miscarriage.

Chromosomal abnormalities of embryo accounts for 30 to 57 percent of miscarriages

Endocrine factors: Systemic maternanl endocrine disorders such as diabetes mellitus and thyroid disease have been associated with pregnancy losses.

Polycystic ovary syndrome (PCOS) has been linked to increased risk of miscarriages. This has been recently attributed to insulin resistence, hyperinsulinomia and hyperandrogenaemia.

Anatomical factors

a) Congenital uterine malformation account for 1.8%to 37.6%.These women experience higher rates of miscarriage and preterm delivery.
b) Cervical weakness is a recognise cause of second trimester miscarriage

Infective agent: TORCH Infection.

The prenatal and and perinatal infection of TORCH includes Toxoplasma other virus rubella, cytomegalo and herpes simplex. It causes miscarriage, foetal death,

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premature birth, intrauterine growth retardation and persistent postnatal infection with developemental malformations.

TORCH Test is a group of antibody titre tests, which measures the presence of antibodies against a specific group of infectious diseases and their level of concentration in blood.

The aim of this study to evaluate the incidence of TORCH infections in women having history of pregnancy loss and their comparison with otherwise clinically normal women with normal full term pregnancies and good foetal outcome.

MATERIALS AND METHODS

The present study was done at MGM Medical college Auranogabad from October 2013 to April 2016. This is prospective observational case control study. Total 50 patients (cases) with pregnancy loss were investigated and 25 patients (control) with term deliveries and good foetal outcome were compared. Cases having pregnancy wastage IUFD, preterm delivery, IUGR, unexplained foetal death and congenital anomalies were included. Detailed examination and conventional lab investigation were carried out. Patients with no history of pregnancy wastage in previous pregnancy and good foetal outcome in present pregnancy were taken as control. Cases with following criterias were excluded from study.

1. Pregnancy termination in view of maternal benefit.
2. Patients having pregnancy loss but incompletely investigated.

From each women 3 ml of venous blood was collected in plain bulb, the serum was used for serological evaluation for TORCH test. All sera were tested for identification of specific antibodies by ELISA. The results were interpreted as – Positive > 1.2 Negative < 0.8 Statistical analysis - Data was maintained in Micro soft Excel 2010 test.

RESULT

Table 1: Distribution of women according to age – in case and control Group

Age groups in years.	Case Group		Control Group		Chi-square value	p-value
	No.	Percentage	No.	Percentage		
<20	10	20.0%	01	4.0%		
21-25	24	48.0%	18	72.0%		
26-30	13	26.0%	06	24%		
31-35	02	4.0%	00	00	6.14	P=0.188
>35	01	2.0%	00	00		NS
Total	**50**	**100%**	**25**	**100%**		
Mean-SD	**24.36**		**23.76**			

Table 2: Bad obstetric History in Case Group

		No. of women (n=50)	Percentage
Abortions	Single	8	16.0%
	Multiple	27	54%
IUFD		05	10.0%
Congenital malformation		05	10.0%
Unexplained Oligo/IUGR		05	10.0%

Table 3: History of previous pregnancy Wastage

	No. of Cases
Single Abortion	10
Multiple Abortion	14
Death	15
Previous anomaly	02

Table 4: Distribution of Women According to Torch in IgG Positive in Case and control Group

TORCH	Case (n=50) IgG positive		Control(n=25) IgG Positive		Chi-square value	p-value
	Case	Percentage	Case	Percentage		
Toxoplasma	28	56.0%	05	20.0%	8.77	p=0.003 S
Rubella	42	84.0%	16	64.0%	3.89	p=0.042 S
Cytomegalo virus	42	84.0%	16	64.0%	3.89	p=0.042 S
Herpes Simplex Virus	18	36.0%	07	28%	0.491	p=0.48 NS

Table 5: Association of Titres with TORCH in case and control group

Toxoplasma	Control	Cases			
		Abortions	IUFD	Cogenital Anomaly	Unexplained Oligo/IUGR
Immune	4	3	00	00	00
Raised titre	1	15	03	03	04
p-value	-	P=0.006 S	P=0.028 S	P=0.028 S	P=0.016 S
Rubella					
Immune	12	04	00	00	00
Raised titre	04	26	05	03	04
p-value	--	P=0.000 S	P=0.003 S	P=0.013 S	P=0.006 S
CMV					
Immune	13	08	00	00	00
Raised titre	03	22	05	04	03
p-value	--	P=0.000 S	P=0.001 S	P=0.002 S	P=0.005 S
Herpes					
Immune	07	02	00	00	00
Raised titre	00	13	01	02	00
p-value	--	P=0.000 S	P=0.005 S	P=0.003 S	--

DISCUSSION

In the present study, every 6.3 live pregnancy has one pregnancy wastage. The magnitude of this problem is still significant, maybe more patients are coming forward to get investigated.

Bad Obstetric History In Case Group: Majority of patients with pregnancy wastage presented with Abortions, with single being 16%, while multiple 54%. Eric Jauliaux *et al* in 2006 stated that in around 1% of fertile couples will experience pregnancy loss.[1] Royal college of physicians of Ireland in Dec 2010 stated that pregnancy loss occurs in 20% of clinical pregnancies equating upto 15,000 miscarriages per annum in Ireland.[4]

Age Related Distributions: Extremes of age is adversely affecting pregnancy outcome in case group. Extremes of age were present in other study also. Rajendra *et al* in 2005 noted on their study that they had maximum number of BOH cases i.e. 52% belonging to age of 26-30 years. [3]Namrata Kumari *et al* in 2011 observed in her study that maximum number of cases found in females were between 18-24 years which is also similar to present study.[2]

Torch positivity in case group: The present shows T-gondii (56.0%), Rubella (84%), CMV (84%), HSV(36%). In a study conducted by Kumari Namrata *et al* in 2011 found T-gondii (50%), Rubella virus (50%), CMV (8.3%) and HSV (33.3%).[2]In a study conducted by Dhruba Acharya *et al* in 2014, the serological screening of TORCH infections in women with spontaneous abortions revealed the IgG seropositivity of 21.2%, 86.8%,64.2%,72.8% and 6.6% for T-gondii,Rubella, CMV,HSV-1 and HSV-2 respectively, whereas the seropositivity among control subjects revealed 22.1%, 88.3%, 48.1%, 63.6% and 15.6% for T-gondii, Rubella, CMV, HSV-1 and HSV-2 respectively.[5]

TORCH IgG positivity in case and control group: In present study, for TORCH IgG, CMV and rubella are commonest infections in both the groups, followed by toxoplasma and Herpes. In the study conducted by Namrata Kumari *et al* mentioned that T.gondii(50%), Rubella(50%), HSV-2 (33.3%), and CMV(83.3%) found in pregnant women with BOH. [2] which has similar results in present study. In the same study for control group, seropositivity for T.gondii was 16.7% only and that of the remaining ones was 0%. [2]

TORCH IgM Positivity in case and control group: IgM positivity indicates recent infections. In the present study only 2% seropositivity is seen toxo and Rubella. No recent infection in CMV and Herpes in both the groups noted. Rajendra B Surpam *et al* in 2005 observed in his study that IgM seropositivity for T.gondii was 14.66%, HSV 8.66%, CMV 5.33% and Rubella 4.66% ; while in control group the seropositivity for T.gondii, Rubella and CMV was 1.33% and 4%HSV, while the present study was we have 8% IgM positivity for T.gondii and Rubella in cases while no recent IgM infection noted in control group.[3] In study conducted by Namrata Saxena in 2015, demonstrated 15.71%% IgM antibodies in there cases.[6] In study conducted by MS Sadik *et al* in 2012, observed 100% CMV negative cases.[7]

TORCH positive agents with different presentations: In present study, maximum number of abortions (71.4%) are found CMV and Rubella positive. In cases of IUFD 10.7% T.gondii seropositivity and Rubella 30% and CMV

30% is seen. Congenitally malformed foetus seen in Herpes is 11% positivity and that of T.gondii 10.7%. Unexplained Oligohydramnios/ IUGR seen in 14.3% toxo and 9.5% in Rubella infection. As per study conducted by Rajendra B Surpam in 2005, the highest positivity in cases of repeated abortions was seen with T.gondii(27.7%) which is statistically different from present study.[3] In the same study, congenital malformation seropositivity with HSV was predominant being 9.52%.[3] Rohin Suryavanshi in 2014 observed highest seropositivity with T.gondii (63.1%) in cases of abortions followed by IUGR and pretermed labour, i.e., 42.8% each.[8] Dhruba Acharya *et al* in 2014 observed the most pre dominant seropositivity rate for abortions was Rubella followed by HSV which is much similar to present study. Dr. Bhavesh R Faldu *et al* in 2015, observed that the highest seropositivity in cases of repeated abortions was seen with T.gondii 43.1% followed by HSV and CMV. With IUGR, T.gondii, Rubella and HSV show equal seropositivity 33.3% each.[12] Namrata Saxena *et al* in 2015 observed that patients present IUFD had 16.6% toxoplasma seropositivity, 11.1% Rubella seropositivity, 38.8% CMV seropositivity and 0% HSV.[6] As per study conducted in Esraa Abdul Kareen Mohammad *et al* in 2014, 13.49% of IUFD was with BOH.[11] Bhuvaneshwari *et al* in 2014 reported to have 33% of toxoplasma infection in her study.[9] In the study conducted by Hassani Umesh *et al* in 2015 stated that the seroprevalence of Rubella IgM was 2.7% and HSV 14.28% which is similar to present study.[10]

CONCLUSIONS

Even in 21st century magnitude of pregnancy loss is significant. The commonest pattern of pregnancy wastage is abortion. Amongst TORCH group, Rubella and cytomegalo virus IgG positivity was more common. IgM positivity was found in only 4% in case group. Even though control group also showed TORCH positivity there was significant difference in the titres.

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