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Gynaecology

SEROPREVALENCE OF ACUTE MATERNAL TOXOPLASMOSIS AND ITS EFFECT ON PERINATAL OUTCOME

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ABSTRACT **INTRODUCTION:**Toxoplasmosis is a parasitic infection caused by obligate intracellular coccidian parasite Toxoplasm gondii. If occurs during pregnancy , it can cause variable complications to the fetus in utero through placental transmission following maternal parasitemia ranging from subclinical infection to intrauterine fetal demise. It can also be manifested as hydrocephalus, microcephaly, choroidoretinitis and neurological deficits in childhood or early adulthood.

AIMS & OBJECTIVE-1)To evaluate the prevalence of Ig M seropositivity for toxoplasmosis in antenatal patients

2) correlation of Toxoplasma Ig M seropostivity with perinatal outcome.

METHOD AND MATERIAL:A prospective observational study was conducted on 200 pregnant females attending antenatal clinics in Department of Obstetrics and Gynaecology of Swaroop Rani Nehru hospital Prayagraj from March 2019 to 2020.Maternal serology testing for Ig M antibodies against toxoplasma was done using chemiluminescence immunoassay) .Delivery outcomes were observed in terms of abortions, still births , congenitally malformed baby and gestational age at delivery.

RESULTS:The study shows rate of IgM positivity is 8.5% among antenatal women. Adverse perinatal outcome in terms of abortions ,preterm birth ,congenital anomaly, were more in Ig M seropositive patients compared to control group which is statistically significant.p< .0001.

CONCLUSION:. Maternal Toxoplasmosis impacts the pregnancy outcome and neonatal affliction in statistically significant way. So it is quiet justified that if we could mandate serological testing of acute maternal toxoplasmosis using Ig M antibody titre as a part of antenatal battery of investigations in all pregnant women , it will lead to betterment of pregnancy and neonatal outcome

KEYWORDS :

INTRODUCTION:

Toxoplasmosis is a parasitic infection caused by obligate intracellular coccidian parasite Toxoplasm gondii. If occurs during pregnancy it is termed as Maternal Toxoplasmosis. Most of the antenatal patients having Toxoplasmosis are asymptomatic[1,2] but it can cause variable complications to the fetus in utero through placental transmission following maternal parasitemia[3,4]ranging from subclinical infection to intrauterine fetal demise. It can also be manifested as hydrocephalus, microcephaly, choroidoretinitis[5]and neurological deficits in childhood or early adulthood.[4,6,7] The chances of vertical transmission are more if infection is contracted in third trimester (60-81%)[8] whereas more severe fetal complications are observed if toxoplasma infection procured during first trimester of conception .[4]Toxoplasmosis in pregnancy occurs through oral route either due to direct contact with animals , soil or ingestion of raw fruits ,vegetables and undercooked meat infected with sporulated oocysts or bradyzoites of Toxoplasma gondii . They develop into tachyzoites in the host that are rapidly dividing cells and are capable of infecting fetus in utero through placental route and cause tissue destruction in developing fetus via host immune reaction. There is no evidence of human to human transmission or through breast feeding.[3]Acute toxoplasmosis in pregnancy is diagnosed serologically by Toxoplasma Ig M antibody titre.

AIMS & OBJECTIVE-

1) To evaluate the prevalence of Ig M seropositivity for toxoplasmosis in antenatal patients
2) Correlation of Toxoplasma Ig M seropostivity with perinatal outcome

MATERIAL & METHOD

TYPE OF STUDY : Prospective Observational Study

PLACE OF STUDY: Swaroop Rani Hospital ,M.L.N.Medical College, Prayagraj

STUDY PERIOD : March 2019 to March 2020

SAMPLING METHOD – Random sample

SAMPLE SIZE :200 antenatal women are included and categorized into two groups

Case Group -patients with Toxoplasma IgM (+)VE

Control group –patients with Toxoplasma IgM (-)VE

INCLUSION CRITERIA

All antenatal women attending antenatal OPD

EXCLUSION CRITERIA

- Patients with gestational diabetes mellitus, preeclampsia, antepartum hemorrhages, intrahepatic cholestatic jaundice etc
- Patients with chronic medical illnesses like diabetes , hypertension, tuberculosis, chronic liver diseases, chronic kidney disease etc

STUDY PROCEDURE

After taking consent, detailed history with special emphasis on flu like illness ,fever ,rashes, night sweats ,headache were taken. Detailed general examination and obstretical examination were done on each visit . Blood sample was sent for routine antenatal investigations and for serology testing Ig M antibodies against toxoplasma .3 ml of EDTA blood sample was taken and analysed byECLIA (Electro-chemiluminescence immunoassay).

Cut Off value for Toxoplasma gondiiIgM:<0.8IU/ml**(Non reactive)**, ≥ 0.8 - > 1 IU/ ml **(Intermediate)** , ≥1 IU/ ml **(Reactive)**

Delivery outcomes were observed in terms of abortions, still births , congenitally malformed baby and gestational age at delivery among both study groups .

STASTISTICAL ANALYSIS

Chi-square tests is used for comparison with P- Value. Significance level as 0.05.

OBSERVATIONS AND RESULTS

Table 1:case Distribution Of Maternal Toxoplasma Infection (n=200)

S.NO	TOXOPLASMA IgM(+VE/-VE)	No(%)
1	IgM(+VE)	17(8.5%)
2	IgM(-VE)	183(91.5%)

Table 1 shows out of 200 cases, 17 cases were seropositive for Toxoplasma Ig M

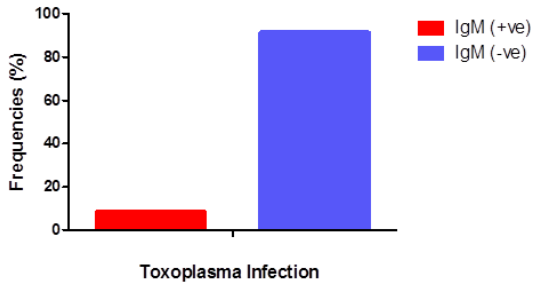


Table 2:Demographic Variables

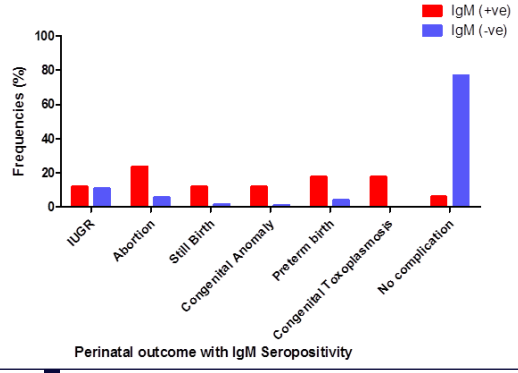
Age				
S. NO	AGE(YEARS)	CASE GROUP (n=17)	CONTROL GROUP (n=183)	P VALUE
1	<20	2(11.7%)	44 (24.04%)	0.5374
2	21-30	12(70.5%)	122 (66.67%)	
3	31-35	2(11.7%)	12 (6.56%)	
4	>35	1(5.8%)	5 (2.73%)	
Parity				
S. NO	GRAVIDITY	CASE GROUP(n=17)	CONTROL GROUP(n=183)	P VALUE
1	Primigravida	6(35.2%)	62 (33.88%)	0.9062
2	Multigravida	11(64.7%)	121 (66.12%)	
Socioeconomic Status				
S. NO	Socio-economic status	CASE GROUP(n=17)	CONTROL GROUP(n=183)	P VALUE
1	Upper middle	1(5.8%)	15(8.20%)	0.3640
2	Middle	1(5.8%)	43(23.5%)	
3	Lower middle	2(11.7%)	16(8.74%)	
4	Lower	13(76.4%)	109(59.56%)	

Table 2 shows maximum antenatal women in our study were between 20-30 years age , multigravida and belonged to low socio-economic status . Both groups were statistically comparable demographically (p value >.01)

Table 3: Perinatal Outcome With Igm Seropositivity

SN	Complications	IgM+ve (n=17)	IgM-ve (n=183)	P value
1	IUGR	2(11.7%)	20(10.9%)	<0.0001
2	Abortions	4(23.5%)	10(5.46%)	
3	Still Birth	2(11.7%)	3(1.6%)	
4	Congenital Anomaly	2(11.7%)	2(1%)	
5	Preterm birth	3(17.6%)	7(3.8%)	
6	Congenital toxoplasmosis	3(17.6%)	0(0%)	
7	No complications	1(5.88%)	141(77.04%)	

Abortions ,preterm birth ,congenital anomaly,stillbirth,IUGR were more in Ig M seropositive patients compared to control group which is statistically significant.p< .0001



DISCUSSION

The current study shows the prevalence of 8.5% of toxo Ig M seropositivity among antenatal patients,similar prevalence was also noted by Padmavathy M et al (2013)[9] who reported5.8% seroprevalence in Bangalore.

Most of the patients in our study were between 21 – 30 years age group in both groups showing the demographic pattern of age distribution attending antenatal OPD in our hospital. Our study shows that this infection has no role with the demographic factors like age , socioeconomic status therefore demographic distribution among case and control groups were found to be insignificant.(P-value>0.01)

Toxoplasma infection in pregnant women leads to pregnancy complications and also leads to variety of fetal anomalies by placental contamination following maternal parasitaemia. The infected placenta then acts as a reservoir from which the parasite can spread to the foetus leading to multi-systemic disease (Daffos et al., 1988)[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.[11,12]In foetuses that survive, lesions are predominantly cerebral due to cerebral vasculitis and necrosis.

Our study as well as other studies(PadmavathyM et al[9] ,Sarkar et al[13],Munna et al[14]) also reported similar findings.Study done by Li X-L [15] concluded that abortions are the most common adverse perinatal outcome followed by preterm birth.If pregnancy advances near term , babies are at high risk of developing complications like still birth, congenital anomalous baby and congenital toxoplasmosis and therefore need to be follow up.

CONCLUSION AND RECOMMENDATIONS

The study shows rate of IgM seropositivity is 8.5% among antenatal women which cannot be easily ignored.It is comparable to the disease which are routinely screened during antenatal period like diabetes mellitus, thyroid disorders etc. Maternal Toxoplasmosis impacts the pregnancy outcome and neonatal affliction in statistically significant way. So it is quiet justified that if we could mandate serological testing of acute maternal toxoplasmosis using Ig M antibody titre as a part of antenatal battery of investigations in all pregnant women , it will lead to betterment of pregnancy and neonatal outcome.

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