

Screening and management of TORCH in pregnancy

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President FOGSI:Dr Suchitra Pandit

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Drafted by Dr Shantanu Abhyankar and Dr Girish Godbole

Guideline development group

Dr. Sanjay Gupte,FOGSI Chairman of the GCPR (Obstetrics committee)

Dr Shalini Singh ,ICMR

Dr Nozer Sheriar (Secretary General FOGSI)

Dr. Rekha Kurian (Vice President Elect FOGSI)

Dr. Uday Thanawala (Vice President Elect FOGSI)

Dr.Girija Wagh Chairperson Medical Disorders in Pregnancy Committee.

Dr. Parikhshit Tank Chairperson Safe motherhood Committee

Dr. Anahita Chauhan

Dr. Sucheta Kinjawdekar

Dr. Anu Vij

Dr. Shantanu Abhyankar

Dr. Gorakh Mandrupkar

Dr Girish Godbole

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Definition and scope

TORCH infections include Toxoplasma, Rubella, Cytomegalovirus and HSV. The acronym has variably been used to include Hepatitis B, Hepatitis E, Syphilis and Parvovirus B19 too. Here we have included

1. Toxoplasma
2. Rubella
3. Cytomegalovirus
4. Herpes simplex
5. Parvovirus B19

General observations

All are known to cross the placenta and be teratogenic. These infections cause significant fetal and neonatal mortality. They are an important contributor to early and late childhood morbidity.

Managing TORCH infections in pregnancy entails the following steps:

1. Suspecting TORCH infection in pregnancy in the mother.
2. Diagnosing TORCH infection in the pregnant woman.
3. Timing the infection in relation to the gestational age.
4. Diagnosing TORCH infection in the fetus.
5. Offering a management plan.

Routine universal screening

1. Routine full '*TORCH PANEL*' screening is not recommended in low risk asymptomatic pregnant women.
2. Routine screening for TORCH is unhelpful and should not be done for investigation of recurrent miscarriage; since TORCH infections are not responsible for recurrent miscarriage.

Suspecting torch infections in pregnant women and fetus

1. TORCH panel screening is indicated in pregnancies suspected to be complicated with congenital infections; such as those with...
 - 1.1. Fetal hydrops
 - 1.2. Fetal brain lesions
 - 1.3. Unexplained IUGR
 - 1.4. Other sonographic markers of fetal infection.
2. Pregnant women with non-vesicular rash with other signs and symptoms suggestive of systemic infection; should be screened for Rubella and Parvovirus B19.
3. Pregnant women with significant contact with a person of such illness should be investigated for Rubella and Parvovirus B19 infection irrespective of whether they develop rash or not.

Diagnosing torch infections in the pregnant women

1. Amongst the many tests available ELISA is the MOST COST EFFECTIVE test.
 - 1.1. The sensitivity and specificity of each test varies and it is best to discuss the report with the concerned specialist so that a correct interpretation is made.
2. Paired serological tests are most helpful only when the first sample has been drawn during clinical illness. The second sample is drawn 4 weeks later and rise in titer or otherwise is used to interpret the test results and diagnosing infection.
3. IgM and IgG both –ve would mean that the patient is unexposed to infection or is unvaccinated (in case of Rubella).
4. IgM+ve and IgG -ve antibodies would mean an acute infection or primary infection.
 - 4.1. However Ig M antibodies for some microbes are known to cross react and hence false positive reports are a distinct possibility and history of fever, rash etc should be elicited from the patient.
 - 4.2. Repeat serological testing after 4 weeks will suggest a recent maternal infection if IgG become positive, with diminishing/absent IgM antibodies.
5. IgM –ve and IgG +ve antibodies usually would mean past infection.
 - 5.1. The timing of the maternal infection can be found by Avidity test for the particular infection.
 - 5.2. A high avidity would mean an infection before 3 months.
 - 5.3. A low avidity would mean an infection within 3 months.
 - 5.4. Depending on the gestation age at infection the chances of fetal infection and affection can now be prognosticated.
6. IgM+ve and IgG +ve would mean that the mother has faced the pathogen sometime in the past.
 - 6.1. Timing the infection in relation to the gestational age is crucial.
 - 6.2. Detailed history, USG and avidity will help in this situation too.

Timing torch infections in relation to the gestational age

1. Paired serology and avidity testing are the two tests that help to time the infection in relation to the gestational age.
2. The following factors will influence the clinical decisions.
 - 2.1. Paired samples have to be tested at least four weeks apart.
 - 2.2. Availability of avidity testing.
 - 2.3. Gestational age when signs of infection and fetal affection are detected. Medical Termination of pregnancy is not permitted beyond 20 weeks.

Diagnosing torch infections in the fetus

1. Fetal infection can be suspected if maternal infection has been diagnosed during the pregnancy or fetal ultrasound suggests infection.
2. Definitive diagnosis of fetal infection is only possible by amniotic PCR.
- 2.1. The amniotic fluid PCR will become positive only after 4 weeks from the maternal infection. Thus the amniocentesis needs to be timed accordingly.
3. Evidence of fetal infection does not necessarily mean fetal affection. The fetus may not have structural anomalies in spite of getting infected.
4. Long term fetal sequel are not predictable.

Offering a management plan

The following options are available for managing these infections.

	PRE-PREGNANCY	PREGNANCY	LABOUR	POST-PARTUM
TOXOPLASMA	-	Maternal infection detected by serological test should be followed by amniotic PCR for detection of fetal infection. If amniotic fluid is infected then SPIRAMYCIN 3gm / DAY TILL DELIVERY is indicated.	-	-
RUBELLA	Screening recommended; both IgG and IgM should be tested. Vaccination for those screened negative for both IgG and IgM. Only IgM positive report suggests recent infection and patient should be	Sero conversion in the first trimester:- MTP should be advised as the chances of severe embryopathy are very high. In later trimester fetal infection can be diagnosed by fetal cordocentesis for Rubella IgM or		Opportunistic vaccination for those screened negative or have not been vaccinated earlier. Advise patient to avoid pregnancy within 3 months of vaccination Neonatal assessment where indicated.

	<p>advised to delay pregnancy by three months . Only Positive IgG would suggest immunity against Rubella either due to past infection or vaccination and no action is required.</p>	<p>RT-PCR (more specific). In the first trimester termination of pregnancy is advised In second trimester avidity testing will help in timing the infection and taking the appropriate decision. In the third trimester chances of fetal infection are remote and appropriate counselling is needed.</p>		
CYTOMEGALOVIRUS		<p>Seroconversion or paired testing will reveal the maternal diagnosis. Counselling about fetal infection has to be done. Fetal diagnosis is done by cordocentesis showing elevated anti CMV IgM or positive amniotic culture or PCR. Consider MTP where appropriate.</p>	Routine care	Neonatal evaluation and follow up
HERPES	Avoid pregnancy till clinical cure	<p>Hospitalisation for severe cases. Watch for uterine activity. Acyclovir 200mg 5 times a day for 10 days or until clinical</p>	<p>Active genital lesions over perineum, vagina and cervix during labour are an indication for CS. . Allow vaginal delivery if no</p>	<p>Evaluation of new born and Acyclovir neonatal prophylaxis when active maternal lesion is seen.</p>

		resolution.	genital lesions are seen. In PPRM individualise patient management.	
PARVOVIRUS B19	Avoid pregnancy till clinical cure and antibody response.	Diagnosed by seroconversion or presence of IgM antibodies. Treat mother symptomatically. Screen fetus for hydrops with serial USG. Intrauterine transfusion if fetal anemia.		

Reactivation of infection in CMV also needs to be addressed