Obstetrics & Gynecology
TEAM

Perinatal Infections

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*Pregnancy is an immunosuppressive state due to hormonal and immunological changes. This state has advantages and disadvantages. The advantage is to not reject the fetus; i.e. accept the placento-fetal allograft, since the fetus is regarded as a foreign body. The disadvantage is making the mother more susceptible to various types of infections.
*It is important to screen the mother during the first antenatal visit (booking) for various organisms (ex. TORCH, Hepatitis and HIV).
*TORCH is an acronym for a group of five infectious diseases:
Toxoplasmosis
Other (syphilis)
Rubella
Cytomegalovirus (CMV)
Herpes simplex virus (HSV)

Infections that Affects the Fetus:

1. Genital Herpes Simplex Virus
2. Varicella Zoster
3. Syphilis
4. Rubella
5. Toxoplasmosis
6. Parvovirus
7. Cytomegalovirus
8. Human Immuno-deficiency virus
9. Chlamydia trachomatis
10. Hepatitis B
11. Group B Streptococcus
12. Listeriosis
13. Gonorrhea

General Principles of Prenatal Infections:

All viruses and most bacteria can pass through the placenta
The fetus does not make IgM until beyond 20 weeks gestation "That is why we say the defect is likely to happen in the first and early second trimester"
Maternal IgG usually pass through placenta
IgM does not pass through placenta
Evidence of infection does not imply fetal damage
Teratogenic effect mainly in **the first and early second trimester** (as mentioned above why)
***All infections** can cause **abortion, IUGR, premature labor, severe neonatal sepsis, or long term carrier states** (like mental retardation) "Even if you don't remember what cretin infection can cause, you could mention these sequela"
Absence of fetal IgM at birth does not mean that infection did not occur unless the baby is 1 year old "because the immunity of the baby takes time to mature"

1-Genital Herpes Simplex Virus

"HSV is a DNA virus. Once the virus is transmitted it is there for live. After the initial infection, the herpes simplex viruses can hide within nerve cells and later launch new attacks. The recurrence of the disease is linked to stress and pregnancy. The classification of genital HSV infection includes: primary and recurrent infection"

*Herpes Simplex Type II "which is usually associated with genital sores"

*Risk of vertical transmission & **though the birth canal** "direct contact with the virus shed from infected sites"

***Primary infection** (first occurrence of HSV infection) **makes more damage than secondary attack** "symptoms of the primary infection include fever, malaise, myalgia and lymphadenopathy. Infants of women with the primary infection occurring during the pregnancy are at greatest risk."

***Primary Herpes infection in the late third trimester is far more dangerous than earlier infection

***Patients with outbreak during pregnancy should take acyclovir prophylaxis from 36 weeks until delivery "To decrease the need for cesarean birth"

***If lesion is present, cesarean section is the optimal mode of delivery**

"Women with primary infection in late trimester should have C/S. However, a woman with recurrent infection (who has a history and is seropositive for the HSV) first asses if she has genital lesions and give prophylaxis at 36 weeks if she is symptomatic, and if at labor she has lesions you do a C/S and if not you deliver vaginally"

*Infection can cause **neonatal viral sepsis, herpetic lesions on skin, eyes, pneumonia, herpes encephalitis which can lead to neurological abnormality and death**

*Infected infants should be treated with I.V. acyclovir

Congenital Herpes

2-Varicella Zoster (Chicken Pox)

***Vertical transmission through placenta**

*Infection before 20 weeks can lead to **abortion, limb hypoplasia, skin scarring, IUGR, neurological abnormality and hydrops fetalis**

*If infection near term, may lead to **postnatal infection which can be mild or fulminating leading to death**

***Varicella Zoster immunoglobulin (VZIG)** should be given to pregnant mothers within 72 hours of exposure and to infants of mothers who develop chicken pox within 5 days before delivery or 2-3 days after delivery

Congenital Chicken Pox

3-Syphilis (Treponema Pallidum)

*Infection to fetus is vertical in patients with **primary and secondary syphilis**

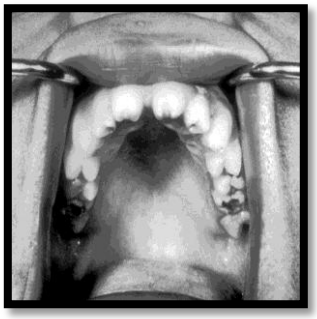
*Can lead to **abortion, still birth, or congenital syphilis** (maculopapular rash, hepato-spleenomegaly, lymphadenopathy, jaundice, 8th nerve deafness, saber shins, Hutchinson's teeth, saddle nose)

*Diagnosis by IGM antitreponemal antibodies

*Treatment is Penicillin

*Latent Syphilis may not transmit the disease

Saddle Nose



Hutchinson's teeth

Maculopapular rash

4-Rubella also known as German measles

(is very imprtant, and always comes in exames)

*Mainly first trimester infection can lead to **congenital rubella** (deafness, cardiac abnormality, cataract, microcephaly, mental retardation)

*No treatment

*Prevention is by **vaccination (childhood or post-natal)**

"it is contraindicated during pregnancy"

***Vaccine is live attenuated so, 3 months contraception is advised after vaccination**

Congenital Cataract

Congenital Heart Disease

5-Toxoplasmosa gondii

*Vertical transmission **through placenta**

***Mostly third trimester infection** that lead to severe neonatal manifestation

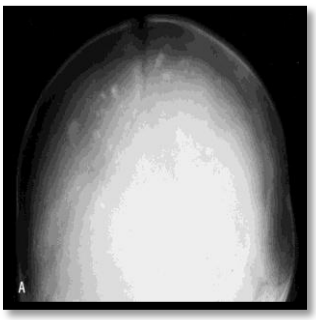
*Can lead to hydrocephaly, microcephaly, intracranial calcifications, jaundice, fever, seizers, chorioretinitis

***If IgM titer is rising, spiramycin or pyrimethamine and sulphonamide are the treatment**

Hydrocephalus

Toxoplasma in Retina

Intracranial Calcification



6-Parvovirus B19

*Causes erythema infectious

*Vertical transmission can lead to **hydrops fetalis, hemolytic anemia, myocarditis, abortion, death**

*If less than 20 weeks and the fetus survive the infection, the fetus may be healthy

7-Cytomegalovirus

*In utero infection cause less than 1% of newborn infections

*Less than 10% of these infections will result in clinical illness

*Affected infants have **30% mortality; they may develop mental retardation, hearing loss, cerebral calcifications, hepato-spleenomegaly, thrombocytopenia, jaundice, chorioretinitis, and interstitial pneumonitis**

*10% of affected infants have no sequela

Mental Retardation

8-Human Immunodeficiency Virus (HIV)

*25% of infants born to HIV infected mothers will become infected with HIV

*Vertical transmission is 13-30% and the rest is through the birth canal (ROM)

***Cesarean section lower the transmission rate by two third in patients with no therapy**

***If ROM cesarean section within 4 hours is advised to protect the fetus**

*AZT (Zidovudine) that decrease the viral load during ante-partum, intra-partum, and neonatal period can reduce the risk of fetal infection by two thirds in mildly symptomatic ladies

***Avoidance of breast feeding reduce the risk of transmission by half**

*Special care during labor and in the operating room should be taken and needle brick prophylaxis when handling the infected patient

*Newborn is given I.V AZT

9-Chlamydia Trachomatis

*Infection is **through the birth canal**
*40% of infants will develop conjunctivitis, 10% will develop pneumonia
***Treatment is by erythromycin or azithromycin**

10-Hepatitis B **(is very imoprtant)**

*Transmission is vertical especially in the third trimester in acute infection
***HBsAg positive indicate chronic disease and risk of transmission to the fetus**
***HBeAg indicate high infectivity**
***The baby should be given Hepatitis B immunoglobulin at birth and an active immunization and repeated at 3, 6 months**
*Cesarean section or breast feeding is unlikely to alter the incidence of neonatal infection

11-Group B Sterptoccoci (GBS)

*5-20% of ladies carry GBS in vagina
*Infection through birth canal
*It is associated with **PROM**
*Can lead to **neonatal meningitis, pneumonia, sepsis**
*Intrapartum prophylaxis is indicated for carriers

12-Listeria Monocytogenes

*Rare bacterial infection by food
*It can cross the placenta leading to **amnionitis, preterm labor, abortion, still birth, jaundice, conjunctivitis, meningoencephalitis**
*Treatment by amoxicillin or erythromycin

13-Gonorrhea

*Infection **through birth canal**
*Can lead to **conjunctivitis, arthritis, meningitis**
*Treatment by Penicillin and probenicid, or erythromycin

H1N1

*Same risk like any other viral infection
***Chemoprophylaxis (Tamiflu) for 10 days**
*Risk of abortion, preterm birth, pneumonia
*Infants risk of neural tube defects, seizers, encephalopathy, cerebral palsy, neonatal death