



Neonatal Sepsis/Meningitis

Fifth Year lecture
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Lecture overview

- ✓ **Definition**
- ✓ **Mode of transmission and microorganisms**
- ✓ **Classification**
- ✓ **Symptoms**
- ✓ **Diagnosis**
- ✓ **Lab investigations**
- ✓ **Treatment**
- ✓ **Prevention**
- ✓ **Prognosis**

Introduction

- Infections cause significant mortality and long-term morbidity in neonates
- The outcome of neonatal infections will be improved if illness is recognized early and appropriate antimicrobial agents are administered promptly

Definition

- ✓ sepsis neonatorum describes a disease of infants who are younger than 1 month of age, are clinically ill, and have positive blood cultures.
- ✓ The presence of clinical manifestations differentiates this condition from the transient bacteraemia observed in some healthy neonates

Transmission

- Sources
 - ✓ Mother
 - ✓ Nursery environment
- Infection is acquired from the mother transplacentally, at the time of delivery, or in the postnatal period

Transmission

- ✓ Infections manifesting within the first week of life are usually the result of exposure to microorganisms of maternal origin
- ✓ infections presenting later can have a maternal or environmental source

Classification

- ✓ **Early onset sepsis : from birth -72 hours of age**
 - GBS**
 - Gram negative**
 - listeria**
- ✓ **Late onset sepsis : from 72 hours -28 days**
 - CONS**
 - Gram negative**
 - Fungal**
 - Listeria**

Risk factors

- **Premature onset of labor, prolonged rupture of fetal membranes**
- **Chorioamnionitis**
- **Maternal fever**
- **Maternal colonization with GBS**
- **Maternal UTI**
- **Iv lines**
- **Invasive procedures**

Presentation

- **Non specific signs**
 - **Temperature instability**
 - **Lethargy**
 - **Apnea**
 - **Poor feeding**
 - **Tachypnea , cyanosis**
 - **Vomiting, Diarrhea, and abdominal distension**

Presentation

- Unexplained metabolic acidosis
- Hyperglycaemia

➤ Late manifestations

Hepatosplenomegaly

jaundice

petechiae

Diagnosis

- Blood work
 - ✓ CBC & Differential
 - ✓ I:T ratio
 - ✓ Acute phase reactants
 - ✓ Blood culture
 - ✓ Urine culture
 - ✓ Lumbar puncture
- CXR

Diagnosis: Meningitis

- The incidence of bacterial meningitis is 0.4 per 1,000 live births
- Its should be part of septic workup of every septic newborn
- Symptoms are sepsis symptoms

Don't depend on meningeal signs

CSF normal values

WBCs	0-25 cell/HPF
Neutrophils	up to 50%
Sugar	50 mg /dl 2/3 serum
Protein	Up to 150 mg/dl

Treatment

- Supportive
- Empirical antibiotic treatment
- Specific antibiotic treatment
- Treatment of complications

Complications

- Mortality is high
- DIC
- Feeding issues
- Necrotizing enterocolitis
- Osteomyelitis
- Hydrocephalus
- Poor neurodevelopment outcome

Prevention

➤ **GBS :**

- **Screen of pregnant ladies**
- **intrapartum maternal chemotherapy**

This should prevent many cases of early-onset neonatal GBS disease

Prevention

- Hygiene measures
- Antibiotic guidelines
- Nurse: patient ratio
- Iv lines guidelines



Prognosis