**From Diagnosis to Recovery: Multidisciplinary Management of Neonatal Sepsis**

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**1. Introduction**

Neonatal sepsis, a life-threatening condition characterized by a systemic infection in newborns, remains a major global health concern. Despite advances in neonatal care, early diagnosis and management of sepsis are critical to improving outcomes. This chapter provides an overview of neonatal sepsis, including its definition, epidemiology, risk factors, clinical presentation, diagnostic strategies, and current management approaches 1.

**2. Definition and Classification**

Neonatal sepsis is broadly categorized into two forms 2,5 .

2.1. Early-Onset Sepsis (EOS)

EOS occurs within the first 72 hours of life, typically acquired from the mother during pregnancy, delivery, or immediately after birth. It is often associated with Group B Streptococcus (GBS) and Escherichia coli (E. coli) infections.

2.2. Late-Onset Sepsis (LOS)

LOS presents after the first week of life up to several weeks or months. It is commonly associated with healthcare-associated infections, including coagulase-negative staphylococci, Staphylococcus aureus, and Klebsiella species.

**3. Epidemiology and Risk Factors**

Neonatal sepsis varies in prevalence worldwide, with higher rates in low-resource settings. Key risk factors include 10:

* Prematurity
* Low birth weight
* Prolonged rupture of membranes
* Maternal infection during pregnancy
* Invasive medical procedures
* Lack of breastfeeding
* Limited access to quality prenatal care

**4. Clinical Presentation**

The clinical presentation of neonatal sepsis is nonspecific and can mimic other neonatal conditions. Common signs and symptoms include:

* Temperature instability
* Poor feeding
* Lethargy or irritability
* Respiratory distress
* Abnormal heart rate
* Jaundice
* Hypotension (in severe cases)

**5. Diagnosis**

Accurate and timely diagnosis of neonatal sepsis is challenging but crucial. Diagnostic strategies include:

5.1. Blood Cultures

Blood cultures are the gold standard for diagnosing sepsis. Multiple sets are often required due to the intermittent nature of bacteremia3,4.

5.2. Biomarkers

Serum markers such as C-reactive protein (CRP) and procalcitonin (PCT) aid in diagnosing and monitoring the response to treatment.

5.3. Molecular Techniques

Polymerase chain reaction (PCR) and nucleic acid amplification tests can rapidly detect specific pathogens8.

**6. Management**

Effective management of neonatal sepsis involves:

6.1. Antibiotic Therapy

Empirical antibiotics targeting common pathogens are initiated promptly, with adjustments based on culture results.

6.2. Supportive Care

Newborns with sepsis often require respiratory support, intravenous fluids, and nutritional support.

6.3. Source Control

Identifying and addressing the source of infection, such as central lines or infected wounds, is essential.

**7. Prevention**

Preventing neonatal sepsis relies on various strategies, including:

* Intrapartum antibiotic prophylaxis for mothers with GBS colonization
* Good hygiene practices during delivery
* Promoting breastfeeding
* Maintaining sterile procedures in neonatal intensive care units

**8. Prognosis**

Prognosis depends on factors like gestational age, timing of onset, and promptness of treatment. Mortality rates remain high in resource-limited settings6,7,9 .

**9. Conclusion**

Neonatal sepsis poses a significant challenge to neonatal healthcare worldwide. Early recognition, timely intervention, and preventive measures are key to reducing its burden and improving the survival and long-term outcomes of affected infants.

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