

NEONATAL SEPSIS

Definition

Neonatal sepsis generally falls into two main categories:

- early onset (*generally acquired from the mother*)
- late onset: sepsis occurring > 72hrs after birth
(*acquired from the nursery environment or from the community*)

Clinical features

Signs and symptoms of Sepsis

- temperature instability:
 - hypo or hyperthermia
- change in behaviour:
 - lethargy, irritability
 - change in tone
(“baby just doesn’t seem right”)
- skin:
 - poor perfusion, mottling
 - pallor, jaundice
 - scleraema
- feeding problems:
 - feeding intolerance, vomiting
 - diarrhea,
 - abdominal distension
- cardiopulmonary:
 - tachycardia, hypotension
 - tachypnoea, respiratory distress, apnoea
- metabolic:
 - hypo or hyperglycaemia, metabolic acidosis

Table 1. Risk factors for sepsis

<i>Any stage</i>
prematurity
neutropenia due to other causes
<i>Early onset sepsis</i>
maternal GBS (group B streptococcus) carrier
maternal HVS positive
prolonged rupture of membranes (PROM) (>18 hours)
preterm labour/PPROM
maternal fever
maternal urinary tract infection
discoloured / foul-smelling liquor
clinical chorioamnionitis
<i>Late Onset Sepsis</i>
overcrowded nursery
inadequate hand washing
central lines
colonization of patients by certain organisms
infection from family members or contacts

Investigations

- full blood count : Hb, TWBC with differential count, platelet count
- blood cultures (at least 1ml of blood)
- where available :
 - serial CRP 24 hours apart
 - ratio of immature forms over total of neutrophils + immature forms - IT ratio > 0.2
is an early predictor of infection during the first week or two of life
- where indicated :
 - lumbar puncture
 - chest, abdominal X-ray
 - culture of endotracheal tube aspirate
 - urine culture
 - maternal high vaginal swab culture

Management

- antibiotics
 - start immediately when diagnosis is suspected and after all appropriate specimens taken. Do not wait for culture results.
 - trace culture results after 48 – 72 hours. Adjust antibiotics according to results. If cultures are negative and infection is clinically unlikely, stop antibiotics.
- antibiotic treatment
 - Early onset sepsis*
 - IV C. Penicillin/Ampicillin and Gentamicin
 - specific choice of antibiotics when specific organisms suspected/confirmed
 - change antibiotics according to sensitivity results
 - Late onset sepsis*
 - for community acquired infection, start on
 - Cloxacillin/Ampicillin and Gentamicin for non-CNS infection and
 - C. Penicillin and Cefotaxime for CNS infection
 - for nosocomial infections
 - choice of antibiotics depends on the prevalent organisms in the nursery and their sensitivities
 - for units where CONS / MRSE/ MRSA are common, consider Vancomycin
 - for non-ESBL gram negative rods, consider cephalosporin
 - for ESBLs consider carbapenams
 - for *Pseudomonas* consider Ceftazidime
 - if anaerobic infections (e.g. Intraabdominal sepsis), consider Metronidazole
 - consider fungal sepsis if patient is not responding to antibiotics especially if preterm or with indwelling long lines
- duration of antibiotics
 - 7-10 days for pneumonia or proven neonatal sepsis
 - 14 – 21 days for GBS meningitis
 - at least 21 days for Gram-negative meningitis
- IV Immunoglobulin may be considered in VLBW babies with sepsis
- consider removing central lines
- complications and supportive therapy
 - *respiratory*: ensure adequate oxygenation with blood gas monitoring and initiate oxygen therapy or ventilator support if needed
 - *cardiovascular*: support BP and perfusion to prevent shock.
 - *haematological*: monitor for DIVC
 - *CNS*: seizure control and monitor for SIADH
 - *metabolic*: monitor for hypo/hyperglycaemia, electrolyte and acid-base imbalance