



Neonatal Infection

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Infection

- An ever increasing problem in the sick and vulnerable neonate
- Predisposition lies in the reduced immune defences of the neonate – both specific and non-specific immunity
- Specific immunity involves the action of immunoglobulins (IgG, IgA and IgM) and T lymphocytes

Classification of infection

- Classified according to when acquired
- 3 types of neonatal infection
- 1) Intrauterine (Congenital) TORCH
- 2) Intrapartum (up to 1st week)
- 3) Post-natal (nosocomial) – from 7 days of life
- Hanley, 2006

Congenital (TORCH)

- Toxoplasmosis
- Other – Syphilis, Varicella, HIV, parainfluenza
- Rubella
- Cytomegalavirus
- Herpes (type 2)
- “TORCH”

Intrapartum infection

- Group B streptococcus is the most common (Bedford-Russell & Plumb, 2006)
- 60% is early onset
- 20% fatal (when there is septicaemia)
- Mimics RDS, collapse / shock, grunting, apnoea
- Treated with penicillin
- Other types – Listeria and Herpes

Acquired Post natal (late onset)

- Nosocomial infection
- Staphylococcus – most common plus gram negative bacteria (E Coli)
- Viral
- Fungal
- Meningitis

Maternal signs

- Maternal History & presence of infection
- Chorioamnionitis
- Fever
- Raised CRP
- Prolonged rupture of membranes (PROM)
- Fetal distress
- Foul / cloudy liquor

Fetal signs

- PRIOR TO DELIVERY.....
- Sustained fetal tachycardia > 160 bpm
- Preterm delivery – common cause is infection
- LBW
- Low apgar (<5 at 1 minute)

Neonatal signs

- RESPIRATORY
- Tachypnoea
- Apnoea
- Hypoxia
- Nasal flaring
- Grunting
- Irregular respirations

Neonatal signs

- **CARDIOVASCULAR**
 - Hypotension
 - Metabolic acidosis
 - Tachycardia
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- **TEMPERATURE INSTABILITY**
 - Newborn temperature <36 OR pyrexial

Neonatal signs

- **GASTROINTESTINAL**
- Vomiting, Diarrhoea, Abdominal distension, poor feeding

- **NEUROLOGICAL**
- Activity decreased or lethargy, Irritability
- Tremor or seizure, Hyporeflexia or hypotonia
- High pitched cry, Fontanelle full

Neonatal signs

- SKIN
- Pallor or skin mottling
- Petechiae or purpura
- Cold or clammy skin
- Cyanosis
- Jaundice

Laboratory signs

White cell count < 5000 OR > 25000

Neutrophil count < 1000

Blood culture

Arterial blood gas

Lumbar puncture

Urinalysis (> 3 days old)

Electrolytes

CRP

Management

- Observe for signs and risks
- 'Universal precautions'- prevention
- Minimise risk of infection
- Septic screen if infection suspected – full or partial
- Treat with antibiotics if required based on cultures / CRP.
- Kenyon et al, 2005; NICE, 2012

Further Reading

- Bedford Russell, A.R., Plumb, J. (2006) GBS and the newborn infant. *Infant* 2(6): 226-27.
http://www.neonatal-nursing.co.uk/pdf/inf_012_gbs.pdf
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<http://www.clinicalevidence.com>
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- NICE (2012) *Antibiotics for early-onset neonatal infection* (CG149) <http://guidance.nice.org.uk/CG149>
- RCOG (www.rcog.org.uk) Guidelines
- Prevention of early onset Group B Streptococcal disease (2003)
http://www.rcog.org.uk/resources/Public/pdf/GroupB_strep_no36.pdf
- Management of HIV in pregnancy (2004)
http://www.rcog.org.uk/resources/Public/pdf/RCOG_Guideline_39_low.pdf
- Management of genital herpes in pregnancy (2002)
http://www.rcog.org.uk/resources/Public/pdf/Genital_Herpes_No30.pdf
- Preterm prelabour rupture of membranes (2006)
http://www.rcog.org.uk/resources/Public/pdf/green_top44_preterm.pdf
- Immunisation Schedule <https://www.gov.uk/government/collections/immunisation>