MANAGEMENT OF
NEONATAL HERPES SIMPLEX VIRUS (HSV) INFECTION

Background

- Neonatal HSV infection is associated with significant mortality (up to 85%) and morbidity (80%) depending on type.
- Transmission can be **perinatal**, following exposure to active genital herpes during delivery (85% of cases) or **postnatal**, following exposure to non-genital herpes infections such as cold sores or herpetic whitlow. Antenatal transmission can also occur although this is very rare.
- Treatment with Aciclovir improves outcomes if started promptly

Presentation

- Babies may be well at presentation, or present with non-specific signs of sepsis
- Typical skin lesions (blisters / vesicular rashes) are often absent.
- Localised Skin, Eyes and Mouth (SEM) disease (45%):
  - Presentation normally in first 1-2 weeks of life if perinatally acquired
  - Skin lesions are typically vesicular (single or grouped, sometimes in a linear distribution) but may mimic other common neonatal rashes such as erythema toxicum. If there is any diagnostic uncertainty, take VIRAL swabs
  - Babies may be otherwise well at presentation, but left untreated, the infection can progress to extensive disease. Early treatment with intravenous (not oral) Aciclovir significantly improves outcomes
- CNS infection (30%):
  - Presentation typically in first 1-4 weeks of life
  - Associated with lethargy, fever, poor feeding and seizures
  - Usually a high lymphocyte count in the CSF
  - Associated with mortality (4%) and neurological sequelae (developmental delay, cognitive disabilities, blindness, epilepsy in 30%.
- Disseminated infection (25%):
  - Babies typically present at 5-10 days of life.
  - Causes a non-specific sepsis-like illness with lethargy and poor feeding. Many will not have a rash (50%) or fever at presentation
  - Disease quickly progresses to involve multiple organs including brain, lungs and liver (causing hypoglycaemia, raised ALT and coagulopathy)
  - Even with appropriate treatment, mortality remains high (30%) as does morbidity (80% have long term sequelae)

General Management

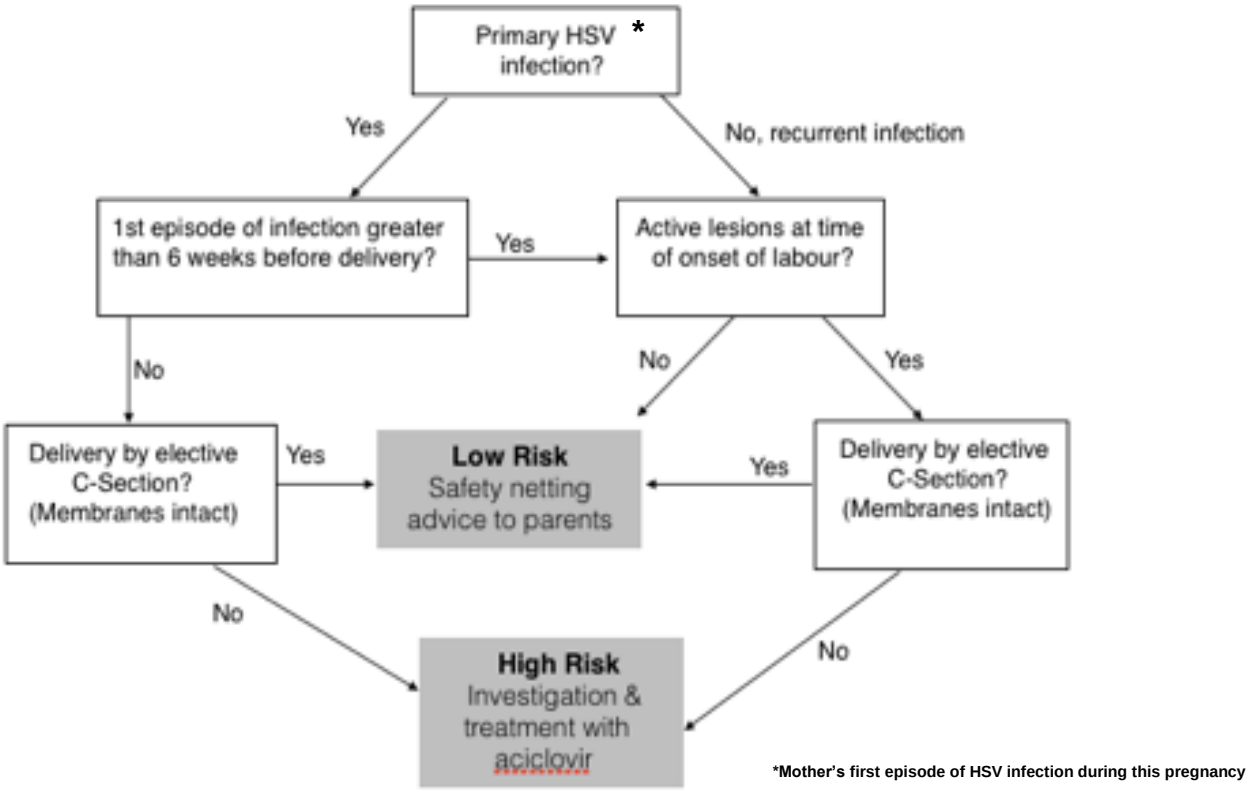
- Always take a history of HSV exposure (including history of maternal genital herpes and contact with non-genital lesions such as cold sores).
  - Ask about the timing of lesions in the mother, and whether the infection was primary or recurrent. Recurrent infections or those before the 3rd trimester are lower risk, as protective antibodies will have transferred across the placenta.
  - The absence of a positive history does not exclude HSV in the infant: HSV infection in adults commonly causes mild or no symptoms, and therefore people may be unaware of them. Babies born to HSV-naive mothers will have no immunity, and therefore are at a higher risk of postnatal transmission.

Specific Management

Symptomatic babies with suspected HSV infection (including babies with non-specific signs of sepsis, not responding to antibiotics)

- Investigations:
  - Bloods: Blood culture (bacterial), FBC, CRP, LFT, coagulation screen, U&E, blood gas. Send HSV PCR to Virology in separate EDTA (purple) bottle.
  - Swabs: Viral/HSV PCR from skin lesions (swab from de-roofed vesicles) and conjunctiva, mouth, pharynx (NPA) and rectum
  - CSF: If stable enough for LP, send CSF for viral PCR, biochemistry, bacterial culture.
  - Remember: A negative CSF result does not rule out infection in the blood, i.e. viraemia
  - Other: Consider CXR if respiratory symptoms and cranial imaging / EEG if neurological symptoms
- Negative PCR results should be evaluated in conjunction with the entire clinical scenario and other investigation results, and not used on their own to exclude HSV disease.
- Start IV Aciclovir promptly (do not treat with oral or topical Aciclovir, even if the baby appears otherwise well):
  - Typically 14 days of IV Aciclovir with isolated SEM disease
  - At least 21 days of IV Aciclovir with CNS or disseminated disease
- Ensure adequate hydration to reduce risk of renal impairment
- Consider bacterial infection and antibiotics (see Sepsis Guideline)
- Most babies with CNS or disseminated disease will require long term 6 months - 1 year suppressive oral Aciclovir as per the advice of the Paediatric Infection Team

Asymptomatic babies perinatally exposed to maternal genital HSV



- Low risk group
  - Investigations and treatment not indicated unless baby is symptomatic
  - Parents should be advised to seek medical attention if the baby is unwell with symptoms of lethargy, poor feeding, fever, vomiting, irritability, etc.
- High risk group
  - As soon as possible after delivery:
    - Bloods: Blood culture (bacterial), FBC, CRP, LFT, U&E, blood gas.
    - Start IV Aciclovir promptly (do not treat with oral or topical Aciclovir, even if the baby appears otherwise well)
  - At 36-48 hours of life:
    - Bloods: HSV PCR Blood (EDTA sample/purple) and repeat FBC, CRP, LFT, U&E, blood gas.
    - Swabs: Viral/HSV PCR from conjunctiva, mouth, and rectum (and pharynx [NPA], if respiratory symptoms)
    - CSF: Viral PCR, biochemistry, bacterial culture
- Continue IV Aciclovir until PCR results are available:
  - If PCR negative (and no clinical suspicion of HSV infection), stop treatment
  - If PCR positive, treatment should be continued for a minimum of 14 days (21 days if CNS or disseminated [blood] infection)
  - Results should be discussed with the Paediatric Infection Team before stopping treatment.

Asymptomatic babies exposed postnatally to non-genital HSV infection (e.g. cold sores)

- Always take a history of HSV exposure (including history of maternal genital herpes and contact with non-genital lesions such as cold sores).
- Reassure parents that mothers with a history of recurrent cold sores (or first ever cold sores before 3rd trimester) are likely to have passed protective antibodies to their babies across the placenta.
- Investigations and treatment not indicated unless the baby becomes symptomatic.
- Parental Advice:
  - Parents should be given careful safety netting instructions to seek urgent medical attention, if their baby becomes unwell with any symptoms of lethargy, poor feeding, fever, vomiting, irritability, etc.
  - Meticulous handwashing
  - Prompt treatment of their own lesions with topical Aciclovir (this will act as a protective barrier and reduce viral shedding) and consider oral treatment, if lesions are severe.
  - Avoid baby coming into direct contact with HSV lesion (cover lesions; avoid kissing, touching, etc.)
  - Breast feeding is contraindicated, if herpetic lesions on the breast / nipple. If the baby has been feeding from breast with active lesions, then have a low threshold for managing baby as **high risk** as indicated above and discuss treatment with Paediatric Infection Team/Virology.