

VARICELLA

RECOGNITION AND ASSESSMENT

Definition

- There are 2 separate presentations depending on timing of infection:
 - fetal varicella syndrome (FVS): maternal chickenpox infection before 20 weeks' gestation
 - neonatal varicella (NV): maternal infection in perinatal period or close contact with chickenpox or shingles in first 7 days after birth

FETAL VARICELLA SYNDROME (FVS)

Symptoms and signs

- Limb hypoplasia
- Scarring of skin in a dermatomal distribution
- Cortical atrophy, microcephaly, bowel and bladder sphincter dysfunction, vocal cord paralysis
- Chorioretinitis, cataracts and microphthalmia
- Intra-uterine growth restriction

Investigations

Maternal

- If no history of chickenpox, check maternal varicella zoster (VZ) IgG at time of contact
- If mother develops rash of suspected chickenpox but uncertain, to confirm send swab from base of vesicle in viral transport media for varicella zoster PCR
- ideally send from community to avoid waiting rooms

Neonatal

- If clinical features of FVS and maternal history of chickenpox
 - for cranial US, ophthalmology examination
- If vesicles present send swab from base of vesicle in viral transport media for varicella zoster PCR, note FVS commonly has scarring which will not test positive by PCR

Management

- Management is supportive and requires long-term multidisciplinary follow-up
- Neither varicella zoster immunoglobulin (VZIG) nor aciclovir has any role in the management of these babies

NEONATAL VARICELLA – EXPOSURE

Baby born to mother who develops chickenpox rash (but not shingles) within 7 days before birth, or 7 days after birth

- Give VZIG 250 mg (1 vial approximately 1.7 mL) IV
 - antenatal chickenpox: give as soon as possible after delivery (must be within 72 hr)
 - postnatal chickenpox: give as soon as possible and preferably within 7 days after initial exposure
 - consider giving in different sites in small babies
 - can be given without antibody testing of baby or mother
- If VZIG not available within 96 hours or IM injection contraindicated, give 0.2 g/kg IVIG immediately (less effective) rather than waiting to offer VZIG
- Start treatment as soon as possible- prophylactic IV acyclovir 20mg/kg every 8h for 48 hours then convert to oral and continue to Day 21 (UKHSA guidance)
- Not indicated:
 - if neonatal chickenpox has developed
 - babies born after 7 days of appearance of maternal chickenpox
 - mother has zoster

Baby exposed to chickenpox or shingles (other than in the mother)

- Significant exposure: household (same room), face-to-face for 5 min, in same room for >15 min with chickenpox or disseminated shingles, exposed shingles (e.g. ophthalmic), shingles in an immunocompromised person

- Case of chickenpox or disseminated shingles is infectious from 24–48 hr before onset of rash until crusting of lesions
- Localised shingles is infectious from day of onset of rash until crusting
- Non disseminated shingles can also be infectious if exposed directly to the lesions (e.g. on face/contact with effected dermatome)
- particular risk in immunocompromised who have increased shedding. Any exposure to these is significant
- **Give VZIG** in the following cases of postnatal exposure to varicella:
 - VZ IgG-negative babies (determined by testing mother for varicella antibodies) exposed to chickenpox or shingles from any other contact other than mother, in first 7 days of life (see **Decision pathway for VZV contact**)
 - VZ IgG-negative babies of any age, exposed to chickenpox or herpes zoster while still requiring intensive or prolonged special care nursing
 - babies exposed postnatally, regardless of maternal chickenpox history, who:
 - weighed <1 kg at birth, **or**
 - were ≤28 weeks' gestation at birth, **or**
 - are aged >60 days, **or**
 - have had repeated blood sampling with replacement by packed cell infusions. Perform VZ IgG assay and, if negative, give VZIG (at risk of not having received/retained sufficient maternal VZ IgG)

Decision pathway for non-maternal VZV contact

Other indications for prophylaxis of a child > 4 weeks exposed to chicken pox

- Remained in hospital since birth and:
 - born <28 weeks **or**
 - weigh <1000 g **or**
 - severe underlying condition congenital or otherwise that require prolonged intensive or special care during the first year of life

Prophylaxis dose of acyclovir In child aged 4 weeks to 2 yr:

- 10 mg/kg 8-hrly IV from days 7 to 14 post exposure (if delay occurs can be started up until day 14 post exposure)

NEONATAL VARICELLA DISEASE

Signs of neonatal varicella

- Mild: vesicular rash
- Severe: pneumonitis, pulmonary necrosis, fulminant hepatitis
- mortality up to 30% (less if VZIG given)
- ensure not bacterial infection – this can coincide with VZV, cover both if suspected

Indications for IV treatment with aciclovir ANY of:

- Aged <1 month, **or**
- Born <28 weeks' gestation, **or**
- Birth weight <1000 g, **or**
- Signs of pneumonitis/other disseminated disease, **or**
- Unwell/ clinical concern at current condition or capacity to worsen

Aciclovir treatment of neonatal VZV

- 10–20 mg/kg IV (over 1 hr) 8-hrly, diluted to 5 mg/mL
- For renal impairment, refer to **Neonatal Formulary**
- Treat for ≥7 days; minimum 14 days if encephalitis present, up to 21 days if severe

SUBSEQUENT MANAGEMENT

Where

- On postnatal ward, unless baby requires neonatal intensive care support:
 - isolate mother and baby together in separate room until 5 days after onset of rash and all lesions crusted over
 - if baby already exposed, breastfeeding can continue, but explain to mother possible risk of transmission

Staff

- Exposed staff with no history of chickenpox, VZ vaccination or of unknown VZ IgG status to have VZ IgG measured by occupational health
- if VZ IgG negative, immunise with varicella vaccine
- remove from clinical duties during days 7–21 following exposure
- if in high-risk group for complications (immunocompromised), offer VZIG

MONITORING TREATMENT

- Aciclovir
- ensure good hydration
- stop once clinical improvement occurs, or when all lesions crusted

DISCHARGE AND FOLLOW-UP

Maternal infection

- After baby has had VZIG, discharge
- Advise mother to seek medical help if baby develops chickenpox, preferably via an open-access policy where available
- Advise GP and midwife to recommend admission to isolation cubicle if rash develops

Fetal infection

- Ophthalmic examination
- Cranial ultrasound
- Developmental follow-up