CMV ● 1/2

In-utero transmission of CMV can occur during primary maternal infection, reactivation, or reinfection of seropositive mothers

MATERNAL TESTS

CMV serology (IgG and IgM) and viral loads

- Both IgG and IgM negative: unlikely to be CMV infection
- IgG positive, IgM negative: past maternal infection
- IgG positive, IgM positive: check CMV IgG avidity
  - if low likely to be maternal CMV infection within last 3–4 months

Antenatal ultrasound

Features include:

- IUGR
- Intracranial ventriculomegaly/calcification, microcephaly
- Ascites, hydrops fetalis
- Pleural or pericardial effusions
- Oligo- or polyhydramnios
- Hepatomegaly
- Abdominal calcification
- Pseudomeconium ileus
- Thickened placenta

NEONATAL FEATURES

Indications for testing

- Evidence of maternal primary CMV infection in pregnancy
- Antenatal ultrasound suggestive of congenital CMV (cCMV): ventriculomegaly, calcifications, periventricular cysts, echogenic bowel, pericardial effusion, ascites and fetal hydrops
- Petechiae/purpura
- Hepatosplenomegaly
- Prolonged or conjugated hyperbilirubinaemia with transaminitis
- Unexplained thrombocytopenia
- Microcephaly
- Intracranial calcification or ventriculomegaly
- Chorioretinitis
- Seizures with no other explanation
- Severe pneumonia
- Cataract
- Failed hearing screen

Investigation results

- CMV PCR urine or mouth swab
  - soak mouth swab in saliva for 1 min; send in viral transport medium to regional laboratory
  - if negative and high-risk CMV also send urine

Other congenital infection screen depending on features (not exclusive):

- Toxoplasma (hydrocephalus, microcephaly, convulsions, generalised infection)
- Syphilis (rash, rhinitis, hepatosplenomegaly, jaundice, thrombocytopenia)
- Rubella (cataract, deafness, microcephaly)
- Zika (maternal/paternal travel, microcephaly)

CMV POSITIVE

Further investigations

- Full blood count, liver enzymes, bilirubin, renal function
- Blood CMV viral load
  - if unknown whether infection is congenital request initial bloodspot card to be tested for CMV PCR
- Ophthalmic assessment
- Audiology: brainstem-evoked response
- Head ultrasound
  - if ultrasound head abnormal or seizures, MRI head

CMV ● 2/2

TREATMENT

- Postnatal acquired CMV – no treatment

Mild cCMV

- Asymptomatic **–** no CNS involvement, including sensorineural hearing loss
- isolated IUGR
- hepatomegaly with normal liver enzymes
- isolated raised ALT/AST
- mild thrombocytopenia
- No treatment

Moderate cCMV

- Discuss with infectious diseases specialist if:
- >2 weeks mild features
- >2 mild features

Severe cCMV

- Significant organ involvement:
- significant liver enzyme abnormalities
- marked hepatomegaly
- Any CNS disease
- isolated sensorineural hearing loss
- retinitis
- microcephaly
- cranial ultrasound or MRI brain abnormalities
- Treat: valganciclovir 16 mg/kg oral 12-hrly for 6 months
- if **not** tolerating oral feeds, ganciclovir 6 mg/kg IV [prepared by pharmacy (cytotoxic)] over 1 hr, 12-hrly for 6 weeks
- Discuss side effects vs benefits with parents:
- **advantages**: potential reduced risk of deafness and developmental delay
- **disadvantages**: during treatment reversible blood dyscrasia; long-term unknown risk to fertility and malignancy
- Start treatment as soon as possible
- if diagnosis delayed can be started aged ≤1 month

FEEDING

- Do not discourage infected women from breastfeeding their own uninfected, term babies (CMV can be transmitted via breastfeeding, but benefits of feeding outweigh risks posed by breastfeeding as a source of transmission)
- Avoid breastfeeding of premature baby if mother is positive and baby asymptomatic

FOLLOW-UP

- Enter on CMV surveillance register (discuss with paediatric infectious disease specialist)
- Ganciclovir IV: FBC, LFT, U&E at least twice weekly
- Valganciclovir oral: FBC, LFT, U&E weekly for first 4 weeks, then monthly until completion
- CMV viral load monthly on antiviral therapy
- Therapeutic drug monitoring if:
- viral load increases >1 log on treatment
- toxicity suspected
- abnormal renal function
- <36 weeks' gestation
- Audiology: 3 monthly for first year, then 6 monthly for 3 yr, then annually until aged 6 yr for both asymptomatic and symptomatic congenitally infected babies
- Paediatric infectious diseases specialist: as soon as possible in first month, then annually until aged 2 yr
- Ophthalmology: at least annually until aged 5 yr if symptomatic/signs at birth
- Neurodevelopmental assessment: aged 1 yr
- if delayed development discuss MRI brain with radiology