

# HUMAN-MILK transmitted CMV

Francis B Mimouni, MD  
Shaare Zedek Medical Center,  
Israel

Based on Hamprecht K et al,  
Clinics in Perinatology March  
2017

# Epidemiological background

---

- 60% - 90% of the general population CMV seropositive.
- Commonest congenital viral infection, affecting 0.3 - 1% of all live births.
- Primary infection usually asymptomatic. Virus then becomes latent, but can be reactivated.

# Epidemiological background

---

- Reactivation is common during lactation [ $>95\%$  during the first three months after birth].

# Epidemiological background

- *CMV*-reactivation during lactation is a local process, with viral shedding into BM
- But, there is no disseminated infection and the reactivation is asymptomatic in the mother.

# Epidemiological background

- Reactivation during pregnancy → shedding of viral DNA and virolactia already in colostrum. Shedding normally ends after about 3 months.

- In a prospective study of prematures [ $<32$  wks,  $<1500$  gm.] transmission occurred in 37% of infants by 3 months corrected age, all had been fed with raw, untreated BM.
- Term infants rarely symptomatic with breast milk-acquired CMV
- Preterm infants with breastmilk acquired CMV may develop lab indicators of disease [neutropenia, thrombocytopenia, hepatitis, elevated liver enzymes] while clinically asymptomatic.

# Symptomatic postnatal CMV infection

- "Sepsis-like symptoms" (SLS) - describes symptoms associated with postnatal CMV-infection in VLBW-preterm infants:
  - Apnea and bradycardia
  - Hepatosplenomegaly
  - Hepatitis
  - Pallor
  - Distended bowel
  - Thrombocytopenia, neutropenia and elevated liver enzymes
- Clinical signs are usually self-limited, with no effect on neonatal outcome.

# Symptomatic postnatal CMV infection

---

- Several reports describe severe illness/ death in VLBW-infants with postnatal acquired CMV:
  - Pneumonia
  - Hepatitis
  - GI - NEC, bloody diarrhea, stricture, volvulus.
- Lower birthweight, earlier CMV transmission and untreated breast milk in the 1<sup>st</sup> month of life → increased risk for SLS.
- Some infants needed antiviral treatment with (val)ganciclovir



# Symptomatic postnatal CMV infection

- In summary, there is a definite clinical entity of postnatal, breast milk, acquired symptomatic CMV infection in preterm infants.
- Symptoms are usually - but not always - self-limited.
- Moreover, some infants, particularly those born <32 wk GA, may become seriously ill and even die.

# Prevention of breast milk viral transmission

---

- Pasteurization eliminates CMV in breastmilk, but also reduces other nutritional / immunologic components.
- Short-term pasteurization (5 sec, 62°C) conserves nutritional and immunological components in milk.
- Freeze-thawing reduces, but does not eliminate viral load.

# Prevention of breast milk viral transmission

- Microwave irradiation (Ben-Shoshan M, Mimouni FB. Breastfeed Med. 2016)
- Ultraviolet-C irradiation (Lloyd ML et al PLoS One. 2016)
- Immunoglobulin therapy Prophylactic IVIG at birth for infants <28 wks with mothers known to be CMV seropositive (Capretti et al)