Newborn CMV Screening
Med Ed Service, WPH Newborn Nursery
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Definitions:
- Microcephaly: Head circumference <3rd %ile for gestational age
- SGA: <10th %ile for gestational age

Newborns who should be screened for CMV:
Screen before discharge if:
- Infant fails hearing screen after 2 attempts

OR
- Infant has microcephaly on day of discharge

OR
- Infant is SGA

OR
- Infant exposed to maternal HIV with maternal CD4 count <200

Ordering the test:
- In Sunrise order is labeled "CMV DNA Qual PCR".
- In the order specify "saliva to be collected at least 1 hour after breast feeding" under special instructions.

Follow-up:
- All positive CMV results are reported to Pediatric ID
- Peds ID makes an appointment with the family
- Each resident/primary attending should also follow up on test results ordered while on service.

Rationale for CMV screening:
The prevalence of CMV positive liveborn infants is 0.5-1%, making it the most common congenital viral infection in the US and the leading cause of congenital hearing loss. The majority of these infants will be asymptomatic at birth. Of the asymptomatic infants, 15% will develop sensorineural hearing loss. Of those with symptoms, 50% will develop hearing loss. In all infants who develop sensorineural hearing loss, 55-75% will have hearing loss that is not detectable at birth. Thus, targeted screening of only infants who fail the hearing screen will not detect the majority of infants with CMV. Universal screening has been suggested, but there have been no international or national official guidelines published (2).

Detection must be within three weeks of birth by urine or saliva. Saliva is the preferred method with a sensitivity of 97-100% and specificity of 99% (3). However there is a risk of false positive if breast milk is present in the baby's mouth when the test sample is collected, so testing at WPH should be done at least 1 hour after breast feeding to minimize this risk.

Treatment recommendations by both Red Book and international consensus do not recommend routine antiviral treatment for sensorineural hearing loss alone in an otherwise asymptomatic baby. However, CMV positive infants can have developmental delays or hearing loss later in life. Screening of CMV could potentially pick up these delays earlier by triggering the pediatrician to do more frequent hearing and developmental screens (4). Finally, it has been shown that infants born to mothers with HIV have a higher rate of CMV infections and so infants who have HIV should be screened for CMV (1).

Symptoms of CMV: direct hyperbilirubinemia, petechiae with thrombocytopenia, purpura, hepatosplenomegaly, microcephaly, retinitis, sensorineural hearing loss, IUGR.

References:

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3. Rawlinson, W.D., Boppana, S.B., Fowler, K.B., Kimberlin, D.W., Lazzarotto, T., et. al. (2017). Congenital cytomegalovirus infection in pregnancy and the neonate: consensus recommendations for prevention, diagnosis, and therapy. The Lancet Infectious Diseases,(17)6, e177-e18
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