2331. Seroprevalence of Cytomegalovirus in Pregnant Women and Birth Prevalence of Congenital Cytomegalovirus Infection in Henan Province, China
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Background. Congenital cytomegalovirus infection (cCMWi) is the leading viral cause of birth defects and developmental disabilities in newborns. The epidemiology of cCMWi in settings with high cytomegalovirus (CMV) seroprevalence, such as China, is not well studied. This study sought to describe maternal CMV seroprevalence and cCMVi prevalence at birth in Henan Province, China.

Methods. A multicenter prospective cohort study was conducted in three counties of Henan Province in China from June 2015 through May 2018. Pregnant women were enrolled early in pregnancy and followed up through delivery. Serum specimens were collected at enrollment for CMV immunoglobulin G serological testing. Saliva and urine specimens were collected in newborns within 72 hours after birth and tested with real-time polymerase chain reaction for CMV DNA. cCMV was defined as CMV DNA positive in the infant's urine or saliva sample.

Results. A total of 6327 pregnant women underwent CMV serological testing and 6062 were CMV seropositive (95.8%). The maternal age was 26.8 ± 4.3 (mean ± SD) years. There were 49 (0.7%) newborns identified with cCMV among 6705 newborns screened. Lower maternal education levels (≤ high school), maternal age (≤ 25 years) and twin-pregnancy were associated with higher cCMV prevalence (P = 0.04, 0.016, and 0.001, respectively).

Conclusion. Despite a high maternal CMV seroprevalence in this large cohort study of healthy infants infected with CMV, settings of high and medium CMV seroprevalence. In settings of high maternal CMV seroprevalence, additional research is needed to ascertain the relative contribution of non-primary CMV infections during pregnancy to congenital transmission.

Disclosures. All authors: No reported disclosures.

2332. Low Serum Vitamin D Levels Are Related to Life-Threatening Respiratory Syncytial Virus Infection in Previously Healthy Infants
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Background. Serum 25-hydroxy-vitamin D (VD) effects on lung growth and immune system modulation might affect respiratory infections outcomes. Data are controversial regarding the role of VD status in the severity of Respiratory Syncytial Virus (RSV) infection. The aim of this study was to assess serum VD levels and its association with life-threatening disease (LTD) in previously healthy infants infected with RSV.

Methods. Prospective cohort study including previously healthy infants <12 months, hospitalized with a first RSV infection in 2017–2018. Viral load (VL) was measured at enrollment for CMV immunoglobulin G serological testing. Saliva and urine specimens were collected in newborns within 72 hours after birth and tested with real-time polymerase chain reaction for CMV DNA. cCMV was defined as CMV DNA positive in the infant's urine or saliva sample.

Results. A total of 1217 immune competent children (median age 5.5 [IQR 2.2–9.8] years) were hospitalized with laboratory-confirmed influenza during the study period. About 28% (341/1217) had at least one PND, including epilepsy (n = 105), developmental delay or intellectual disability (n = 26), neuromotoric or metabolic disorders (n = 27), neuromuscular disorders (n = 22) and others (n = 253). Compared with previously healthy peers, these children were more often admitted to the intensive care unit (31% vs. 16%, P < 0.001), had a longer length of stay (3 vs. 2 days, P = 0.001), and had a higher incidence of neurologic complications (23% vs. 6%, P < 0.001). Seizures (18% vs. 4%, P = 0.001) and encephalopathy (8% vs. 2%, P < 0.001) in particular were more common in children with PNDs, but other neurologic complications occurred in comparable proportions (3% vs. 1%, P = 0.088). Only 49% of the overall cohort had documented annual influenza vaccine; coverage was slightly better for children with PNDs than those without (55% vs. 48%, P = 0.017). The odds of having a neurologic complication in children with documented vaccination was nearly half that of other children when adjusted for age, influenza strain, and any PND (adjusted OR 0.64, 95% CI 0.44–0.94, P = 0.021).

Conclusion. The excess risk of neurological complications in children with PNDs highlights the importance of vaccinating this population. Additional consideration should be given to post-exposure prophylaxis for children with PNDs who have not received vaccine.

Neurologic Complications by Pre-Existing Neurologic Diagnosis and Year

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2334. Saliva Screening for Congenital Cytomegalovirus Infection in the Neonatal Intensive Care Unit: Beware!
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Background. Congenital cytomegalovirus infection (cCMV) is the leading viral cause of birth defects and developmental disabilities in newborns. The epidemiology of cCMV in settings with high cytomegalovirus (CMV) seroprevalence, such as China, is not well studied. This study sought to describe maternal CMV seroprevalence and cCMVi prevalence at birth in Henan Province, China.

Methods. A multicenter prospective cohort study was conducted in three counties of Henan Province in China from June 2015 through May 2018. Pregnant women were enrolled early in pregnancy and followed up through delivery. Serum specimens were collected at enrollment for CMV immunoglobulin G serological testing. Saliva and urine specimens were collected in newborns within 72 hours after birth and tested with real-time polymerase chain reaction for CMV DNA. cCMV was defined as CMV DNA positive in the infant's urine or saliva sample.

Results. A total of 6327 pregnant women underwent CMV serological testing and 6062 were CMV seropositive (95.8%). The maternal age was 26.8 ± 4.3 (mean ± SD) years. There were 49 (0.7%) newborns identified with cCMV among 6705 newborns screened. Lower maternal education levels (≤ high school), maternal age (≤ 25 years) and twin-pregnancy were associated with higher cCMV prevalence (P = 0.04, 0.016, and 0.001, respectively).

Conclusion. Despite a high maternal CMV seroprevalence in this large cohort study of healthy infants infected with CMV, settings of high and medium CMV seroprevalence. In settings of high maternal CMV seroprevalence, additional research is needed to ascertain the relative contribution of non-primary CMV infections during pregnancy to congenital transmission.

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Session: 248. Congenital Infections - CMV and HSV

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3233. Newborn Dried Blood Spot for Retrospective Diagnosis of Congenital Cytomegalovirus (CMV) Infection: It's Time for Universal Screening!

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Background. The diagnosis of congenital cytomegalovirus (cCMV) infection is often delayed due to patient's age and difficulty of diagnostic tests. The newborn dried blood spot (DBS) test has been suggested as a potential tool to screen newborns for congenital CMV infection. However, studies in the literature have not determined whether DBS test is sensitive for this purpose. We aimed to determine the sensitivity of newborn DBS for detection of CMV DNA in infants who are seen for evaluation of sensorineural hearing loss (SNHL).

Methods. Retrospective review of the electronic health records of neonates who were referred to the Neonatal Infectious Disease (NEO-ID) Clinic at Nationwide Children's Hospital. Columbus, OH since 2015 for evaluation of SNHL. Demographic, clinical, laboratory, and radiographic data were reviewed. With maternal informed consent, the newborn DBS was obtained from the Ohio Department of Health for testing of CMV DNA by polymerase chain reaction (PCR) testing as previously described (Bobpana et al. JAMA, 2010).

Results. Eighteen infants (gestational age [mean ± SD], 38 ± 4 weeks; birth weight, 3,094 ± 705 g) with SNHL were referred for Otolaryngology for evaluation of possible cCMV infection; 79 (4%) had CMV in their newborn hearing screen. The 18 infants were first tested for CMV at 15 ± 124 days of age (mean ± SD); range, 21-521 days), and 3 (17%) had a positive CMV DBS (100%). Fourteen (78%) of the 18 infants had a positive serum CMV IgG antibody and 5 (63%) of 8 infants had CMV DNA in urine.

Conclusion. Although it has only been in place for 5 months, the new protocol has increased adherence to audiology appointments. CMV testing has increased from 0% to 82% and 1 patient has tested positive for congenital CMV infection. The ongoing success of this protocol could facilitate timely and appropriate treatment of CMV withvalganciclovir.

CMV Testing Performed

Pre-intervention

Adherence to Audiology Appointment

82%(9/11) Yes

Pre-intervention

New Protocol

48.6% No

51.4% Yes

9%(9/11) No

82%(9/11) Yes

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2337. Health Outcomes in Congenital Cytomegalovirus, a Systematized and Unbiased Approach in the Electronic Medical Record Era

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