Results. HAdV admissions and genotype profiles in KKH are described in Figures 1 and 2, respectively. There were 85 children with severe HAdV infection, of which 17 (20%) received cidofovir for mainly viremia (8, 47.1%) and pneumonia (7, 41.2%). Of these 17 patients, 7 (41.2%) died. More children treated with cidofovir had genotype 7 infection (8 of 17, 47.1%) vs. 13 of 68 (19.1%) who did not (P = 0.027). Characteristics of patients who received cidofovir are described in Table 1. None experienced adverse reactions from cidofovir.

Figure 1: Children admitted for HAdV infection in KKH from Jan 2013 to Sep 2017

Figure 2: Genotype profiles of HAdV infection in KKH from Jan 2013 to Sep 2017

Table 1: Comparison of Characteristics of 17 Children Who Received IV Cidofovir

| Characteristic                  | Discharged (N = 10) | Death (N = 7) | P Value |
|--------------------------------|---------------------|--------------|---------|
| Age in years (median, IQR)     | 2.6 (1.7–3.7)       | 2.2 (1.2–5.9) | 0.922   |
| Male                           | 5 (50.0)            | 6 (85.7)     | 0.304   |
| Significant co-morbidities     | 5 (50.0)            | 6 (85.7)     | 0.304   |
| Prematurity                    | 0 (0.0)             | 1 (14.3)     | 0.412   |
| Neurological                   | 1 (10.0)            | 3 (42.9)     | 0.250   |
| Cardiopulmonary                | 0 (0.0)             | 1 (14.3)     | 0.412   |
| Immunodeficiency               | 3 (30.0)            | 1 (14.3)     | 0.603   |
| Others                         | 1 (10.0)            | 0 (0.0)      | 1.000   |
| Disease presentation           |                     |              |         |
| Pneumonia                      | 1 (10.0)            | 6 (85.7)     | 0.004   |
| Gastroenteritis                | 1 (10.0)            | 0 (0.0)      | 1.000   |
| Neutropenic sepsis             | 0 (0.0)             | 1 (14.3)     | 0.412   |
| Viremia                        | 8 (80.0)            | 0 (0.0)      | 0.002   |
| Days of symptoms prior admis- | 6.5 (2.3–10.8)      | 4.0 (0.0–5.0) | 0.350   |
| sion (median, IQR)             |                     |              |         |
| Adenovirus genotype 7          | 4 (40.0)            | 4 (57.1)     | 0.637   |
| Required ICU stay              | 5 (50.0)            | 7 (100.0)    | 0.044   |
| Days to cidofovir (median, IQR)| 7.0 (1.5–25.8)      | 12.0 (4.0–40.0)| 0.434  |
| Length of stay in days (median, IQR) | 21.5 (15.0–63.5) | 34.0 (16.0–43.0) | 0.696 |

All n (%) unless stated otherwise.

Conclusion. More children with HAdV genotype 7 infection required cidofovir treatment. HAdV pneumonia and ICU admission are potential risk factors for mortality despite cidofovir treatment.

Disclosures. All authors: No reported disclosures.

2343. A Multicenter Study on Clinical Outcome of Symptomatic Neonatal Herpes Simplex Virus Infection in Korea

Donggu Kim, MD1; Joen-Sik Choi, MD1; Ji Young Park, MD, Msc3; Su Eun Park, MD, PhD4; Byung-Kook Lee, MD, PhD5; Hyunjoo Lee, MD, PhD3; Seung Beom Han, MD, PhD3; Eun Young Cho, MD3; Hye Kyung Cho, MD, PhD5; Byung Woook Eun, MD, Phd3; Dae Sun Jo, MD, PhD5; Yun-Kyung Kim, MD, PhD5; Kyung Hye Kim, MD, PhD5 and Jae-Jeun Kim, MD, PhD5; Pediatrics, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea, Republic of (South), 2Department of Pediatrics, Sungkyunkwan University Hospital Samsung Changwon Hospital, Changwon, Korea, Republic of (South), 3Department of Pediatrics, Pusan National University Children's Hospital, Yangsan, Korea, Republic of (South), 4Department of Pediatrics, Yongsei University Wonju College of Medicine, Wonju, Korea, Republic of (South), 5Pediatrics, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of (South), 6Department of Pediatrics, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of (South), 7Department of Pediatrics, Chungnam National University School of Medicine, Daejeon, Korea, Republic of (South), 8Department of Pediatrics, Gachon University Gill Medical Center, Incheon, Korea, Republic of (South), 9Department of Pediatrics, Pulu University Nowon Hospital, Seoul, Korea, Republic of (South), 10Pediatrics, Chosun University College of Medicine, Jeonju, Korea, Republic of (South), 11Department of Pediatrics, Korea University College of Medicine, Ansan City, Gyeonggi-Do, Korea, Republic of (South), 12Department of Pediatrics, Ewha Womans University College of Medicine, Seoul, Korea, Republic of (South)

Session: 248. Pediatric Viral Infections
Session date: Saturday, October 6, 2018: 12:30 PM

Background. Neonatal herpes simplex virus (NHSV) infection is rare but can cause a severe disease, even death. However, data on NHSV are limited in Asia. The aim of this study was to estimate the number of NHSV infection and evaluate the characteristics of NHSV infection in Korea where seroprevalence of HSV infection in child-bearing age women is not well known.

Methods. This is the first multicenter retrospective study in 12 university hospitals in Korea. From January 2008 to December 2017, neonates ≤ 28-day old with confirmed HSV infection were included. These were identified using PICNICs retrospective database of microbiologically confirmed CNS infections detected January 2013 to December 2017. Clinical features and outcomes of HSV and non-HSV infection were compared.

Results. Of the 112 cases of viral infections, HSV accounted for 8 (7%) and enterovirus for 103 (92%). Eighty (100%) HSV cases and 45 (43%) non-HSV cases presented at <21 days. Forty (50%) HSV cases had no pleocytosis. HSV cases were more likely to require ICU admission (P = 0.016), present with seizures (P = 0.001) and have extra-CNS disease (P < 0.001). Among infants <3 weeks of age, seizures were more likely in HSV than non-HSV cases (45% vs. 4%); HSV cases received acyclovir for a median of 23 days. Two (2%) remained positive at 21 days; these were treated for 51 and 42 days, respectively, until PCR negative or death (acyclovir resistance was confirmed postmortem). Four infants received suppressive acyclovir until 6 months, one of whom developed virologically proven CNS recurrence and sequescent infantile spasms. Neurodevelopmental morbidity (45%) was more likely in HSV than non-HSV (P = 0.003).

Conclusion. High levels of suspicion for viral infections must be maintained for young infants presenting with seizures in the first 3 weeks of life. CNS pleocytosis may often be absent. Resistance testing should be considered if PCR remains positive beyond 21 days. CNS recurrences may still occur beyond the recommended period of prophylaxis.

Disclosures. All authors: No reported disclosures.
(12.5%) patients with disseminated disease died within 30 days from the diagnosis and one of them had a maternal history of previous genital herpetic lesion. There was no mention on maternal history of genital herpes in 10 (63%) patients in the medical records.

**Conclusion.** Although not common, NHSV infection occurs in Korean babies with high-30-day mortality rate of 12.5%. Increased awareness is warranted among Korean pediatricians to take a thorough maternal history of genital herpes infection.

**Disclosures.** All Authors: Korean Society of Pediatric Infectious Diseases; Member, Research grant.

### 2344. FDA Analysis of CD4 Cell Count Declines Observed in HIV-Infected Children Treated With Elvitegravir/Cobicistat/Emtricitabine/Tenofovir Alafenamide

Tanev Bell, MD; Melissa Baylor, MD; Sung Rhee, PhD; LaRee Tracy, MA, PhD; Mario Sampson, PharmD; Islam Younis, PhD; Yodit Belew, MD; Wendy Carter, DO and Prabha Viswanathan, MD; Center for Drug Evaluation and Research (CDER), US Food and Drug Administration, Silver Spring, Maryland

**Session:** 248. Pediatric Viral Infections Saturday, October 6, 2018: 12:30 PM

**Background.** Elvitegravir (EVG)/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) is approved for treatment of HIV-1 in children weighing ≥25 kg based on a Gilead sponsored study of safety, pharmacokinetics (PK), and antiviral activity among 23 virologically suppressed (VS) children 6–<12 years old who switched from a stable antiretroviral (ARV) regimen to E/C/F/TAF. All subjects were perinatally infected with HIV. Though all subjects maintained HIV viral load <50 copies/mL, a decrease in mean CD4+ cell count (CD4ct) occurred at Week 2 and persisted to Week 12 among 23 virologically suppressed (VS) children 6–<12 years old who switched from a stable antiretroviral (ARV) regimen to E/C/F/TAF.

**Methods.** We explored possible reasons for CD4ct declines including change in total leukocyte counts or ALC. There was no association between CD4ct and PK of each drug in E/C/F/TAF, and trends in subject-level CD4ct. We reviewed prior ARV trials and literature to look for drug class effects.

**Results.** Decreased CD4cts were not explained by declines in total leukocyte counts or ALC. There was no association between CD4ct and area under the curve (AUC) of any of the four drugs. Mean CD4ct decline was not driven by a few outliers; CD4ct declined in 21/23 subjects. Prior ARV trials of VS adults and children, including EVG-containing regimens, show no notable sustained decline in CD4ct. Pediatric studies of other integrase inhibitors (INSTI) in this age group did not have comparable VS subjects. The literature describes structural similarity between human recombinant activating gene (RAG)1/2 and HIV integrase. RAG inhibition by INSTIs could potentially interfere with B and T cell development. EVG exposure in mice at supra-therapeutic concentrations, caused significant reductions in mature B lymphocytes. The relevance of this finding to humans is unclear.

**Conclusion.** Decreased CD4ct is a unique finding in this pediatric study of E/C/F/TAF and the etiology remains unclear. Inhibition of RAG1/2 by EVG may play a role, but further research is needed. No subjects had nadir CD4ct <350 and no opportunistic infections were reported. However, CD4 declines are included in E/C/F/TAF labeling to alert providers of this potential risk.

**Disclosures.** All authors: No reported disclosures.

### 2345. Knowledge, Practices, and Attitudes of Youth Providers About STI, HIV Testing, and PrEP

Monica Schwarz Josten, MD; and Susana Keeshin, MD; Pediatrics, Lucile Packard Children's Hospital, Stanford University, Palo Alto, California; Pediatrics/Internal Medicine, University of Utah, Salt Lake City, Utah

**Session:** 248. Pediatric Viral Infections Saturday, October 6, 2018: 12:30 PM

**Background.** In 2015, over half of sexually transmitted infections (STI) and 22% of new HIV infections were among youth aged 15–24. Latest Utah data from 2014 showed this group accounted for 62% of chlamydia, 33% of gonorrhea, and 12% of new HIV infections. HIV testing in Utah is low with 24.2% of adults ever tested. There have been no studies published evaluating Utah HIV testing rates in youth.

**Methods.** An anonymous email-based survey was sent to 396 youth providers in Utah during an 8-week span in 2017. 102 (26%) responded and analysis was limited to 83 (21%) providers who reported caring for patients aged 15–24.

**Results.** The median age of providers was 35.5; median years out of residency 8.5; most were female (54%); self-identified as Caucasian (86%); attending level physicians (70%) and many (61%) practiced in urban settings. Over half identified as moderately, very, or extremely comfortable screening for HIV. Approximately 75% were familiar with CDC HIV testing guidelines. However, only 16% report always or often testing youth for HIV. Providers were more likely to screen for HIV in older patients; 19% always or often screening patients age 17–24 and 10% of patients age 13–16. Factors that increased the likelihood of offering an HIV test included: patient request, men who report sex with men, prior STI or a history of injection drug use (Figure 1). Common reasons for rarely or never offering testing included: belief the patient panel is not sexually active, low prevalence of HIV and provider discomfort in discussing sexual behaviors (Figure 2). Less than one-third of providers reported familiarity with the CDC's PrEP guidelines, but most (91%) expressed interest in more information. Provider discomfort in offering PrEP was highest in the younger patients (Figure 3). The same factors that increased the likelihood of testing for HIV held true for prescribing PrEP.

**Conclusion.** In Utah, the majority of providers are familiar with CDC HIV testing guidelines; however, testing remains low. This may be due to misconceptions around HIV risk and provider comfort. This is a missed opportunity for early detection of HIV in a population with known high rates of other STIs. Youth providers are not familiar with PrEP but they would like further education.

**Disclosures.** All authors: No reported disclosures.

### 2346. Severe Head and Neck Infections Following Influenza Virus Infection in Children

Catherine Foster, MD and Sheldon L. Kaplan, MD, FIDSA; Baylor College of Medicine and Texas Children's Hospital, Houston, Texas

**Session:** 248. Pediatric Viral Infections Saturday, October 6, 2018: 12:30 PM

**Background.** Seasonal influenza infection is associated with secondary bacterial complications involving the upper and lower respiratory tract. However, the association of influenza infection with secondary severe or complicated head and neck infections is not appreciated.

**Methods.** We performed a retrospective review of pediatric patients hospitalized at Texas Children's Hospital with bacterial head or neck infections following influenza infection from October 2017 to March 2018. We queried the infectious diseases consult database using the search terms: orbital cellulitis, mastoiditis, retropharyngeal abscess,