**Background.** Parechovirus-A3 (PeV-A3) is an emerging pathogen causing septis and meningoencephalitis in neonates and young infants. We previously reported that maternal antibodies against PeV-A3 are important to protect neonates and young infants from the infection. We showed that all neonates and infants who developed PeV-A3-related diseases had low neutralizing antibody titers (NATs) against PeV-A3 at the onset of disease, subsequently developed high NATs at 3 and 6 months of age. Subsequent changes in NATs against PeV-A3 in children who suffered from PeV-A3-related diseases are currently unknown. Additionally, their long-term neurological outcome is not well described in such population.

**Methods.** Subjects were PeV-A3-infected infants less than 4 months in Niigata, Japan during 2013–2014, and follow-up serum samples were obtained longitudinally from the patients at 3, 6 months, 1 and 3 years after the infection. NATs against PeV-A3 were measured using LLC-MK2 cells. Neurological outcomes of the patients were evaluated by their pediatricians at their study visits.

**Results.** We evaluated 45, 34, 33, 26, and 16 serum samples at onset, 3, 6 months, 1 and, 3 years after the infection, respectively. All 45 serum samples at onset had low NATs against PeV-A3 less than 1.32 which was regarded as a cutoff to prevent PeV-A3 infection. Subsequently, the NATs had elevated to the high level (≥1:512) after the infection in all patients. Three years after the infection, all patients except one achieved normal neurodevelopmental milestones. Only one patient who was diagnosed as severe status epilepticus due to meningoencephalitis had developmental delay with difficulties in sitting and walking with support.

**Conclusion.** This study showed that NATs against PeV-A3 sustained high levels in patients who had severe PeV-A3-related diseases in their neonatal or young infantile periods. Neurological outcomes of the patients who suffered from PeV-A3-related diseases seem to be excellent, except for the case with complicated clinical course.

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**2350. Parainfluenza Virus Infection Factors: 18 Years’ Active Surveillance in a Pediatric Hospital**

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**Background.** Parainfluenza virus (PIV) is an important cause of acute lower respiratory tract infection (ALRI), hospitalization and mortality in children. The aims of this study were to describe the clinical-epidemiological pattern and infection factors associated with PIV.

**Methods.** Prospective, cross-sectional study of patients admitted for ALRI 2000–2017, diagnosed with respiratory syncytial virus, adenovirus, influenza or parainfluenza by fluorescent antibody (FA) or real-time polymerase chain reaction (RT-PCR) assay of nasopharyngeal aspirates.

**Results.** From a total of 15,451 patients included, 13,033 were tested and 45%(5831) had positive samples; RSV was predominant (81.3%,4738) all through the study period, followed by IF: 7.6%(440), PIF 6.9%(402) and AV: 4.3%(251). PIV followed a seasonal epidemic pattern predominantly during spring months (September–October). The median age of cases was 8 months (IQR: 4–13 months); 54% of cases were males. The most frequent clinical presentation was bronchiolitis (61%); 53% had previous admissions for respiratory causes, 9% were readmissions. Comorbidity was found in 59.4%: recurrent respiratory disease (47.8%), congenital heart disease (5.7%), chronic neurological disease (6.5%); 8.3% were malnourished, 23% born preterm and 3.3% immunocompromised; 23.3% had complications, 10.6% hospital-acquired infections. Lethality was 3.5% (14/396).

The following were independent predictors for PIV infection: recurrent respiratory disease odds ratio (OR): 1.65 (95% CI: 1.32–2.08); P < 0.001; readmissions, OR 9.95 (95% CI: 1.34–2.83); P < 0.001; born preterm, OR: 1.58 (95% CI: 1.19–2.10); P = 0.001.

**Conclusion.** Parainfluenza infection showed an epidemic seasonal pattern (September–October), with higher risk in children with recurrent respiratory disease, prematurity and previous admissions for respiratory causes.

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