993. Role of Maternal Antibodies in Human Parechovirus Type 3 Infection in Young Infants

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Background. Human parechovirus type 3 (HPeV3) is an emerging pathogen that causes sepsis and meningoencephalitis in neonates and young infants. Although HPeV3 infection presents with serious clinical manifestations, other genotypes do not cause similar infections in young infants; thus, it is necessary to determine why HPeV3 results in severe infection in this age group. We tested the hypothesis that maternal antibodies are important in the pathogenesis of HPeV3 infection.

Methods. Cord blood samples were collected from healthy neonates born at full term in a city hospital in Niigata, Japan from September 2013 through January 2014. Neutralizing antibody titers (NATs) to HPeV1, 3, and 6 were measured using LLC-MK2 cells. NATs were also prospectively measured in young infants (n = 4) with clinically suspected HPeV3 infection that was later confirmed by real-time PCR and direct sequencing of the VP1 region of the virus.

Results. We evaluated 175 cord blood samples. Median gestational age (range) was 39.7 (37.1-41.9) weeks, and median maternal age (range) was 32 (16-44) years. The geometric mean (95% CI) titer of antibodies to HPeV3 was 33.9 (25.4-45.3), as compared with 52.0 (40.5-66.8) for HPeV1 and 48.9 (35.7-66.9) for HPeV6. At a cutoff of 1:8, the seropositivity rate for HPeV3 was 81%, which was similar to the rates of 89% for HPeV1 and 83% for HPeV6. The four patients infected with HPeV3 had low NATs ($\leq$1:16) at disease onset and subsequently were confirmed to have high NATs ($\geq$1:512) after the infection. The geometric mean (95% CI) titer of antibodies to HPeV3 in mothers aged 16-24 years (336.5 (176.1-642.9), n = 11) were higher than those in mothers aged 25-34 years (31.9 (22.0-46.4), n = 107) or aged 35-44 years (24.4 (15.4-38.6), n = 57) ($P < 0.001$), suggesting dominant exposure to the specific age group in this population.

Conclusion. The present findings suggest that maternal antibodies to HPeV3 are important in the pathogenesis of HPeV3 infection in neonates and young infants. Antibody supplementation may thus help improve the clinical course of affected patients.

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