HUMAN PARECHOVIRUS INFECTION – IMPORTANT CAUSE OF SEPSIS-LIKE DISEASE IN NEONATES AND YOUNG INFANTS

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Introduction

Human parechoviruses (HPeVs) are small, nonenveloped RNA viruses within the *Parechovirus* genus of the Picornaviridae family. In the late 1990s, HPeVs were identified as genetically distinct from enteroviruses and reclassified into a separate genus. To date, 16 genotypes of HPeV have been identified. HPeV infections typically target young children <2 years old and are often asymptomatic.

HPeV-3 is associated with more severe disease, especially neonatal infection is characterised by a severe sepsis-like syndrome, meningitis or encephalitis. It has been suggested that HPeV-3 may be intrinsically more virulent with greater neurotropism and greater ability to disseminate than other parechovirus serotypes. The presenting features of HPeV-3 infection are high fever, marked irritability, tachycardia, tachypnea, signs of poor perfusion, abdominal distention, feeding difficulties, rash or generalised redness and seizures. The CRP typically remains low. Although CSF pleocytosis rarely develops, meningo-encephalitis is common, and white matter changes are commonly evident on cranial imaging.

Diagnosis is best made by reverse transcription-PCR (RT-PCR) from blood, stool, respiratory samples, or CSF. Treatment is based on supportive measurements. Serious disease treatment with IVIG has been tried, although further data are needed to support this approach.

Objective & Methods

Eight neonates with clinical signs of neonatal sepsis admitted to Department of neonatology from July 2017 to October 2017 with negative bacterial cultures and enteroviral PCR were additionally tested for HPeV infection with RT-PCR method.

Conclusion

HPeV should be considered as a causative agent of sepsis-like disease in neonates and young infants with negative bacterial cultures and enteroviral PCR. Confirmation of HPeV infection by RT-PCR assay can help reduce length of hospital stay and unnecessary use of empiric antibiotic therapy.

Results

From July 2017 to October 2017 8 patients with suspected late-onset neonatal sepsis were admitted to our department, all of them born at term and previously healthy. Age at admission was 6 to 33 days (median: 18 days), all cases presented within 24h of clinical sign's onset. The most common clinical presentation was fever (100%), tachycardia (100%), tachypnea (87.5%) signs of poor perfusion (87.5%) and severe irritability (100%). Other features included abdominal distention (50%), rash (12.5%), apnea (25%) and feeding difficulties (37.5%). Laboratory tests showed mildly elevated or normal CRP (median: 10.4 mg/L) and PCT (median: 1.17 µg/L), median WBC count was 6.8 10⁹/L. Blood, urine and CSF bacterial cultures were negative. Lumbar puncture was performed in 5/8, showing no pleocytosis and slightly elevated protein, in 4/5 CSF samples HPeV was detected, 2 of them also had HPeV positive stool samples. In the remaining 4/8 patients HPeV was detected in nasopharyngeal swab. In 7/8 antibiotic therapy was initiated with median duration of 3.5 days. Median hospital stay was 4.8 days with no ICU transfers. All children recovered completely.

Sources & Acknowledgements

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