



ORIGINAL ARTICLE

Epidemiological and clinical characteristics of infants admitted to hospital due to human parechovirus infections: A prospective study in Spain[☆]

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KEYWORDS

Human parechovirus;
Infants;
Fever without source;
Clinical sepsis

Abstract

Introduction: Human parechovirus (HPeV) is one of the recently described picornaviridae viruses that have been associated with fever without source (FWS), clinical sepsis, gastroenteritis, meningitis, or encephalitis in very young infants. The aim of this study is to describe the epidemiology and clinical features of these viruses.

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◇ Appendix A lists the members of the Research Group on Infections by Enterovirus and Parechovirus in Children.

Patients and methods: A prospective multicentre 3-year study was conducted in 12 hospitals in Spain. Out of 850 specimens examined, 47 were positive (5.52%), with HPeV-3 being the most frequent (29 cases). Infections occurred throughout the year, but mainly in May and July, and a biennial distribution was observed. More than half (57%) were neonates, and only 2 children were older than 3 months. Fever was present in all children, with irritability in 45%, rash in 18.6%, and diarrhoea in 14%. The results of biochemical tests were all in normal range. The most common final diagnosis was FWS (61%), followed by clinical sepsis (29%). Up to 29% of infants were admitted to the intensive care unit, but only one patient had sequelae.

Results: Out of 850 specimens examined, 47 were positive (5.52%) for HPeV, with HPeV-3 being the most frequent (29 cases). Infections occurred throughout the year, but mainly in May and July, and a biennial distribution was observed. More than half (57%) were neonates, and only 2 children were older than 3 months. Fever was present in all children, with irritability in 45%, rash in 18.6%, and diarrhoea in 14%. The results of biochemical tests were all in normal range. The most common final diagnosis was FWS (61%), followed by clinical sepsis (29%). Up to 29% of infants were admitted to the intensive care unit, but only one patient had sequelae.

Conclusions: HPeV circulates in our country, mainly during spring and summer, and affects young infants with a FWS and clinical sepsis. Molecular diagnostic techniques in all hospitals could help in improving the management of patients with these infections.

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PALABRAS CLAVE

Parechovirus humano;
Lactante;
Fiebre sin foco;
Sepsis

Características epidemiológicas y clínicas de los lactantes hospitalizados por infecciones por parechovirus humanos. Estudio prospectivo en España

Resumen

Introducción: Los parechovirus humanos (HPeV) son virus de la familia Picornaviridae, recientemente descritos, a los que se atribuyen cuadros de fiebre sin foco (FSF), sepsis clínica, gastroenteritis, meningitis o encefalitis fundamentalmente en lactantes pequeños. Nuestro objetivo fue describir la epidemiología y las características clínicas de las infecciones por HPeV en nuestro medio.

Pacientes y métodos: Estudio multicéntrico prospectivo, llevado a cabo en 12 hospitales a nivel nacional, entre 2013-2015, en niños < 3 años con FSF, sepsis clínica o patología neurológica. Se realizó determinación de HPeV mediante RT-PCR en el Centro Nacional de Microbiología en suero, heces o líquido cefalorraquídeo.

Resultados: Se analizan 47 infecciones por HPeV de un total de 850 muestras (5,52%), siendo HPeV-3 el más frecuente (29 casos), con predominio en mayo y julio, con una distribución bienal. El 57% eran neonatos y solo 2 > 3 meses. Todos los pacientes presentaron fiebre, el 45% irritabilidad, el 18,6% exantema y el 14% diarrea. No se observa ninguna alteración específica en las pruebas bioquímicas. El diagnóstico final más frecuente fue FSF (61%) seguido de sepsis clínica (29%). Aunque un 29% de los niños precisaron ingreso en cuidados intensivos, solo un paciente presentó secuelas.

Conclusiones: Los HPeV circulan en nuestro país, afectando fundamentalmente a lactantes < 2 meses y se asocian a FSF y sepsis clínica, con un predominio en primavera y verano. Sería de interés implementar las técnicas moleculares de diagnóstico en todos los hospitales para reconocer y manejar adecuadamente estas infecciones.

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Introduction

Human parechoviruses (HPeVs) are small RNA viruses, of which 16 different types are currently known (HPeV-1 through 16).^{1,2} Types 1 and 2 were first described in 1945 and initially classified as echovirus 22 and 23 within the *Enterovirus* genus. In 1999 they were reclassified into a different genus, *Parechovirus*, within the Picornaviridae

family, based on their biological and genomic characteristics. Infections by HPeV-1 and 2 had been associated with mild gastrointestinal and respiratory disease. However, types 3–16, described in the past 10–12 years, seem to be able to produce neurologic and systemic infections of varying severity. The studies published in recent years attribute HPeVs, and especially type 3, a significant role in severe infections in young infants,³ although the epidemiology and

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