Human parvoviruses affect the development and clinical course of meningitis and meningoencephalitis

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Abstract

Background: Meningitis and meningoencephalitis are neurological inflammatory diseases and although routine diagnostics include testing of wide range of pathogens, still in many cases no causative agent is detected. Human parvovirus B19 (B19V), human bocaviruses 1-4 (HBoV1-4) and human parvovirus 4 (hPARV4) are members of Parvoviridae family and are associated with wide range of clinical manifestations including neurological disorders. The main aim of this study was to determine whether human parvoviruses infection markers are present among patients with meningitis/meningoencephalitis in Latvia as well as to clarify the role of these viruses on clinical course of mentioned diseases.

Methods: In this study 42 cases of confirmed or unknown aetiology meningitis or meningoencephalitis were evaluated. PCR method was used for detection of B19V, HBoV1-4 and hPARV4 genomic sequences. In order to evaluate if there are some clinical differences between patient groups and in case of active parvovirus infection, nonparametric statistical tests were used.

Results: Our study revealed HBoV1-4 and B19V genomic sequences in 52.38% and 16.67% of patients, respectively. Furthermore, symptoms such as the presence of a headache and its severity, fatigue, disorientation and difficulties to concentrate were significantly frequently present in patients with active parvovirus infection in comparison with parvoviruses negative patients.

Conclusions: We suggest that HBoV1-4 and B19V infection should be included in the diagnostics to reduce the number of meningitis/meningoencephalitis with unknown/unexplained aetiology.

Full-text

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