

Enterovirus infection: Epidemiological situation, problems, and solutions

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018 JPR Solutions. All rights reserved. Enterovirus infection is an actual problem in the modern world. The causative agents of this infection are widespread and characterized by various variants of the disease clinical course (from the signs of acute respiratory viral infection to serous meningitis or myocarditis), which requires a detailed differential diagnosis during the provision of medical care to the patients with various clinical patterns. The methods of epidemiological analysis and generally accepted methods of variational statistics were used in this work. The work carried out by the authors showed that regional health-care systems and certain medical organizations have the problems of dealing with infected enterovirus infection, carrying out antiepidemic (preventive) measures in epidemiological foci of enterovirus infection, the organization of work in the framework of hygiene education, and others. The epidemiological analysis of 2012–2017 allows to talk about the tendency of enterovirus infection incidence increase in Russia (4.7 times) and the Republic of Tatarstan (14.3 times) and the increase of the incidence of enterovirus meningitis in Russia (2.3 times). This problem requires the adoption of effective management decisions, as well as their careful implementation.

Keywords

Enterovirus infection, Enteroviruses, Epidemiology, Prevention

References

- [1] Demina AV, Netesov SV. Enteroviruses. Part 2. Enterovirus infections: The variety of clinical manifestations. Bull SO RAMS 2009;6:116-25.
- [2] Kanayeva OI. Enterovirus infection: The variety of pathogens and clinical forms. Infect Immun 2014;1:27-36.
- [3] Joffret ML, Jégouic S, Bessaud M, Balanant J, Tran C, Caro V, et al. Common and diverse features of cocirculating Type 2 and 3 recombinant vaccine-derived polioviruses isolated from patients with poliomyelitis and healthy children. J Infect Dis 2012;205:1363-73.
- [4] Sadeuh-Mba SA, Bessaud M, Massenet D, Joffret ML, Endegue MC, Njouom R, et al. High frequency and diversity of species C enteroviruses in Cameroon and neighboring countries. J Clin Microbiol 2013;51:759-70.
- [5] Enterovirus Surveillance Guidelines. Guidelines for Enterovirus Surveillance in Support of the Polio Eradication Initiative. WHO; 2015. p. 29.
- [6] Guidelines for Environmental Surveillance of Poliovirus Circulation. Geneva: World Health Organization; 2003. WHO/ V&B/03.03. Available from: http://www.who.int/hq/2003/WHO_V&B_03.03.pdf. [Last accessed 2014 Sep 09].
- [7] Morbidity and Mortality Weekly Report; 2012. p. 741-6.
- [8] Laboratory Quality Management System - Training Toolkit. Geneva: World Health Organization; 2009. Available from: http://www.who.int/ihr/training/laboratory_quality/en/index.html. [Last accessed 2014 Sep 09].

- [9] Polio Laboratory Manual. Geneva: World Health Organization; 2004. WHO/IVB/04.10. Available from: http://www.who.int/hq/2004/WHO_IVB_04.10.pdf. [Last accessed 2014 Sep 09].
- [10] WHO Laboratory Biosafety Manual. Geneva: World Health Organization; 2004. Available from: <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf?ua=1>. [Last accessed 2014 Sep 09].
- [11] Schmidt NJ, Ho HH, Lennette EH. Propagation and isolation of group A coxsackieviruses in RD cells. *J Clin Microbiol* 1975;2:183-5.
- [12] Miller JM. *A Guide to Specimen Management in Clinical Microbiology*. Washington, D.C: ASM Press; 1999.
- [13] Kroneman A, Vennema H, Deforche K, v d Avoort H, Peñaranda S, Oberste MS, et al. An automated genotyping tool for enteroviruses and noroviruses. *J Clin Virol* 2011;51:121-5.
- [14] Zykova TA. Perfection of Virological Studies on Water Objects of the Environment in the System of Sanitary and Virological Surveillance. Abstract from the Diss. The Candidate of Medical Sciences, Moscow; 2006. p. 26.
- [15] Bailly JL, Mirand A, Henquell C, Peigue-Lafeuille H. Phylogeography of circulating populatios of human echovirus 30 over 50years: Nucleotide polymorphism and signature of purifying selection in the VP1 capsid protein gene. *Infect Genet Evol* 2009;9:699-708.
- [16] Yang XH, Yan YS, Weng YW, He AH, Zhang HR, Chen W, et al. Molecular epidemiology of Echovirus 30 in Fujian, China between 2001 and 2011. *J Med Virol* 2013;85:696-702.
- [17] Yarmolskaya MS, Shumilina EY, Ivanova OE, Drexler JF, Lukashev AN. Molecular epidemiology of echoviruses 11 and 30 in Russia: Different properties of genotypes within an Enterovirus serotype. *Infect Genet Evol* 2015;30:244-8.
- [18] Morozova NS, Chernyavskaya OP, Mikhailova YM, et al. Enterovirus (non polio) infection in Russian federation during theseason of 2013. *ZniSO* 2014;10:34-7.