Prevalence and phylogenetic characterizations of Enterovirus D68 strains among respiratory infection cases in Beijing, 2018-2019

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Abstract

Backdround: Enteroviruse-D68 (EV-D68) has been endemic in Beijing for some years. This study analyz the prevalence and phylogenetic characterizations of EV-D68 in Beijing during 2018 to 2019. Methods: The clinical specimens were collected from respiratory infection cases of 30 sentinel hospitals in Beijing and subjected to EV and EV-D68 detection by real-time PCR. Results: Of 15, 645 respiratory infection cases, 467(2.98%) cases were enterovirus positive and 14(0.09%) were EV-D68 positive. The detection rates of EV-D68 were 0.11% (9/7, 837) in 2018, 0.06% (5/7, 805) in 2019, respectively. Of these EV-D68 infection patients, 7 cases were aged younger than 18 years, 3 were aged 18 to 60 years and 4 aged over 60 years. 4 cases (28.6%) were diagnosed as upper respiratory tract infection and 10 (71.4%) as pneumonia, including one with severe pnuemonia. The main symptoms for EV-D68 patients were fever (10/14,71.4%) and cough (9/14, 64.3%). 7 cases were detected in summer and the rest cases in the autumn. The phylogenetic analysis suggested that EV-D68 strains from 2018 belonged to a major subclade B3 and a minor subclade D3, while all strains in 2019 were clustered into subclade D3. These subclade B3 or subclade D3 strains were located in a separated evolutionary branches,respectively. Conclusions: Our research further elucidate the continuous molecular evolution and genetic variability of EV-D68 occured in Beijing, China.

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