Impact of genetic changes in the Enterovirus 71 genome on virulence

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**Abstract**

Enterovirus 71 (EV-A71) is one of the main etiological agents of hand, foot and mouth disease (HFMD). EV-A71 mainly infects infants and young children below six years of age. Clinical manifestations of HFMD include fever, rashes with the presence of vesicles on the hand, feet and mouth. However, the onset of severe HFMD can lead to neurological complications such as acute flaccid paralysis, brainstem encephalitis and cardiac pulmonary failure that can be fatal. This chapter addresses how genetic events such as recombination and spontaneous mutations could change the genomic organization of EV-A71, leading to strains with higher virulence. An understanding of the recombination mechanism of the poliovirus and non-polio enteroviruses provides evidence for the emergence of novel EV-A71 strains responsible for fatal HFMD outbreaks. Currently, it is unknown if the virulence of EV-A71 is contributed by the events of recombination between EV-A71 and other enteroviruses or it is due to the presence of spontaneous mutations that affect its virulence.