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Rao C. Durga, Naidu R. Jagadeesh, Maiya P. Padmanabha, M. Ananda Babu, Bailly Jean-Luc



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Large-scale HFMD epidemics caused by Coxsackievirus A16 in Bangalore, India during 2013 and 2015

Rao C. Durga ^{a,*}, Naidu R. Jagadeesh ^a, Maiya P. Padmanabha ^b, Ananda babu M ^c, Bailly Jean-Luc ^d

^a Department of Microbiology & Cell Biology, Indian Institute of Science, Bangalore, India

^b Agadi Hospital & Research Centre, Bangalore, India

^c RMV Hospitals, Bangalore, India

^d Université Clermont Auvergne, UFR Médecine, Clermont-Ferrand cedex1 – France

ABSTRACT

Hand foot and mouth disease (HFMD) is a relatively unreported disease in India. This study was undertaken to characterize the enterovirus type/s associated with two unexpectedly-massive epidemics that occurred in Bangalore, India in 2013 and 2015. Stool samples of 229 children with HFMD living in Northern and Southern areas of Bangalore were tested by RT-PCR; 189 (82.5%) were enterovirus positive. The Indian CV-A16 strains exhibited 98-99% sequence identity with those reported in France and China in the 5' untranslated region. BLAST and phylogenetic analyses of complete genomes of representative Indian isolates revealed that the 2015 epidemic was predominated by an inter-species recombinant between CV-A16 and coxsackievirus B5. The 2013 epidemic was primarily caused by nonrecombinant strains. The CV-A16 strains circulated in India since 2007 and phylogeographic analyses indicated imported cases in France and China. In conclusion, CV-

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