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Short Communication

The re-emergence of hand, foot and mouth disease: Are we awaiting an epidemic?

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India has reported over 250 cases of Hand, Foot and Mouth Disease (HFMD) in Maharashtra as of August 28, 2022 which has sparked a new debate among healthcare workers regarding the possibility of another epidemic.¹ HFMD is a contagious viral infection that is self-limiting and commonly infects children less than five years of age. It is caused by Enterovirus species which are non-enveloped, linear, positive-sense, single-stranded RNA viruses in the Picornaviridae family. While coxsackievirus A16 (CVA16) and enterovirus A71 (EV-A71) were the major etiological agents in India earlier (Calicut outbreak-first in India followed by sporadic cases from almost the entire country), the data on recently circulating strains shows coxsackievirus A6 (CV-A6) as the predominant etiological agent in south India during 2015-2017.² CV-A6 is also responsible for the recent global outbreaks in Thailand, China, Japan, USA and Finland.³ It has a genome length of approximately 7.4 kb and is composed of a 5' untranslated region (UTR), structural protein P1, functional protein P2 and P3, and a 3' UTR. Till date, CVA6 strains can be classified into four genotypes- A, B, C and D based on VP1 gene phylogenetic analyses.⁴

HFMD is an acute febrile illness that presents with typical football shaped vesicles on hands, mouth, feet and buttocks. Non-specific symptoms include malaise, sore throat, loss of appetite and weight loss. Incubation period is 7-10 days with most cases occurring in early summer and autumn. It has a human-to-human transmission and spreads by direct contact through respiratory droplets, stool, and blisters of infected cases, contaminated objects or discharge. Most cases are seen in pre-school children but it can also infect older children and adults as well. Although it is largely self-limiting but it can be fatal causing meningitis, myocarditis and encephalitis. Outbreaks and sporadic cases caused by CVA16 are notorious for causing aseptic meningoencephalitis.^{2,5}

The diagnosis is usually made clinically. Light microscopy of biopsies from lesions can differentiate it from herpes-simplex and varicella-zoster virus. Serology can differentiate EV-71 from coxsackievirus virus as it has prognostic significance.⁶ Laboratory diagnosis is by isolating the virus in culture from respiratory samples, stool or vesicular fluid and molecular identification is by polymerase chain reaction followed by genetic sequencing.⁷

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HFMD outbreaks can be triggered by viruses such as the SARS-CoV-2 (COVID-19 pandemic) which can possibly introduce genetic changes in the circulating strains.⁵ As a result, children are at an increased risk of infection from the new strains and further research on the Enterovirus genome is warranted to prevent future outbreaks. Treatment for the disease is only supportive with antipyretics and analgesics. Researchers in China have developed a vaccine against EV-71 which is presently under various stages of clinical trial.⁵

HFMD has become a significant public health problem at present because of frequent outbreaks, rise in incidence, severity and fatal complications especially in Southeast Asian countries. Enhanced clinical and molecular research are need of the hour so as to develop multivalent vaccines, monitor and prevent future disease outbreaks and increase public health awareness. The government authorities should be urged to provide safe and clean drinking water, improve sanitation and hygiene facilities, and formulate a central data base having cumulative data specifically from private hospitals which bear most of the caseload.¹ The above precedent calls for an increased and continuous surveillance for HFMD and appeals for making it a notifiable disease in India.

1. Conflict of Interest

None.


2. Source of Funding

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