

# Short Commentary on EV71 Vaccination Effects

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## About the Study

Enterovirus 71 (EV71) is the major etiological agents of hand foot mouth disease that poses severe risks to children's health [1]. As EV71 is a neurotropic virus, EV71-associated Hand, Foot and Mouth Disease (HFMD) tends to be more severe and even caused fatal neurological complications [2]. Therefore, prevention of EV71 infection is very important. Currently, the most effective prevention measure against viral infection is vaccination. Since 2015, three inactivated monovalent EV-A71 vaccines have been approved for use in China, which developed by the Institute of Medical Biology, Chinese academy of Medical Sciences and Sinovac Biotech, and in 2016, three inactive monovalent EV-A71 vaccines have been approved for market entry in China [3,4]. But these must be paid for by vaccine recipients themselves, and are not covered by the national immunization program. While the low rate of vaccination in Shandong area in 2016 and 2017 may be due to the beginning of inoculation less than two years, lack of publicity, awareness, and payment for vaccination. Most parents were willing to vaccinate their children against EV71-related HFMD. Parental age, location, education level, knowledge of EV71 vaccines, concern about susceptibility, and severity of HFMD were all factors that influenced willingness to vaccinate [5]. With the knowledge of EV71 vaccines growing, the rate of inoculation increased gradually in recent years. Some studies have shown a highly effective protection rate for HFMD cases and the vaccine has performed well in severe HFMD cases in a real-world setting [6-8]. However, there are relatively few reports of the effect of EV71 vaccination on the incidence of encephalitis of hospitalized patients with HFMD.

In order to analyze the effect of EV71 vaccination on the incidence of encephalitis in patients with HFMD, We once collected patients with HFMD in 2018 and 2019, 169 and 123 patients received EV71 vaccine (the inactivated enterovirus 71 vaccine was developed by Sinovac Biotech or the Institute of Medical Biology, Chinese academy of Medical Sciences) among them in 2018 and 2019, respectively, to observe and analyze the clinical protective effect of EV71 vaccine and changes in the incidence of encephalitis. Among patients in 2018 and 2019, 292 cases were vaccinated 176 (60.3%) cases were male, and 2,486 cases unvaccinated. Boys had a higher proportion of inoculation in 292 inoculated cases in two years, why boys had a higher rate than girls in EV71 vaccination in our collected patients, which may be that the protective effect of EV71 vaccine is

weaker in boys, so the HFMD incidence was higher, but further research is needed. Between vaccinated and unvaccinated cases, there was no significant difference in age, sex, or incidence rate of HFMD and herpangina. But the incidence rate of encephalitis in vaccinated patients was significantly lower than that in unvaccinated ( $P=0.028$ ), which suggests that EV71 vaccine has a protective effect on the occurrence of encephalitis. But some EV71 vaccinated patients still developed into encephalitis showed that they had not produced protection or protection was weak against EV71-related encephalitis, the reasons require further investigation. In all, EV71 vaccines are very effective and should be administered in the age window between 6 months and 5 years.

While Coxsackie Virus A 16 (CVA16) infection has increased in patients with EV71 vaccine in our study. But as the proportions of other enteroviruses, such as CVA6, have been increasing among HFMD cases in both China and Worldwide, it is important to develop multivalent vaccines that can protect against multiple enterovirus serotypes [9,10].

## Disclosure of Potential Conflict of Interest

No potential conflicts of interest were disclosed.

## Funding

This work was supported by the Science and Technology Planning Project of Jinan Health and Family Planning Commission (grant numbers: 2017-1-42).

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Received date: 06-Mar-2023, Manuscript No. VCRH-23-90955; Editor assigned: 08-Mar-2023, Pre QC No. VCRH-23-90955 (PQ); Reviewed: 20-Mar-2023, QC No. VCRH-23-90955; Revised: 27-Mar-2023, Manuscript No. VCRH-23-90955 (A); Published date: 06-Apr-2023, DOI: 10.37421/2736-657X.23.S3.003.

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**How to cite this article:** Xu, Daoyan and Jian Li. "Short Commentary on EV71 Vaccination Effects ." *Virol Curr Res* (7): (S3) (2023) :003.