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RESEARCH ARTICLE

STUDY ON RE- ESTABLISHMENT OF POLIOMYELITIS FROM HYDERABAD, TELANGANA STATE INDIA

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ABSTRACT

Poliomyelitis was re surfaced in Hyderabad, India. Water samples were collected from different polluted water bodies near Amberpet nala of Hyderabad and observed the presence of P2 Strain, which has resistance for the polio vaccine, causing a great concern not only to the government of Telangana and also the Indian government. The P1 and P3 serotypes are controlled by vaccination. Polio 1, 2 and 3 are called serotypes also called as P1, P2 and P3.

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INTRODUCTION

The Recent of outbreak of poliomyelitis from Hyderabad Telangana state and Utter Pradesh have raised concern that the poliovirus is continuing even after eradication, in such outbreak it is understood that the virus have been replicated nearly for two years, before identifications or detection or the presence of virus. The virus is detected from waste water sampling and feces of children below two years of age; this is treated as high risk zone. This may lead to subsequent identification of viral infection in some of the developing countries and they are prone to re establishment of poliovirus. Insufficient dosages and shortcomings of vaccination may lead to spread of the disease. Polio is caused by the virus, this disease affect mainly the children below the age group of five years. This polio infection may lead to irreversible paralysis, out of them up to 10% die due to immobilization of mules. In the year of 2015 it is reported that the polio cases were almost nil. WHO recognized Pakistan and Afghanistan as polio endemic countries.

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Polio virus is a microscopic size measuring 27 nm; it carries major antigenic sites with neutralizing antibodies, Karl Land Stainer and Erwin Popper in the year 1909 have isolated the polio virus. Akova- Koffi *et al.* 2004. Studied on the Recombinant polio virus from Abidjan. The actual mechanism of virus particle in to the human cell is unknown. The shape of the viral particle changes before entering the human cell. There is no information on the survival rate of OPV virus in circulation Cote d lvoire after vaccination, Fine PEM, Carneiro IAM, 1999. (Fine and Carneiro, 1999). Polio vaccine was invented by in the year 1953 by Jonas Edward Salk. In India polio vaccine was introduced in the year 1978. Poliomyelitis was not known before 20th century scientist thought it is an endemic pathogen. It was first reported in Europe (Trevelyan *et al.,* 2005) and USA, later it was reported from the rest of developed countries. This epidemic was recorded during the summer session (What is Polio, 2007). Poliomyelitis was considered as world's most feared disease and it was difficult to identify the child who will be infected (Sass *et al.,* 1996).

Polio case study in Hyderabad

Resurfacing study of polio virus was conducted in urban area of Hyderabad, Telangana state, the city of Hyderabad is with a number of water bodies, that is lotic and lentic water bodies some of them are natural and some were dug by the great

Nizam of Hyderabad. The city of Hyderabad thickly populated with a number of slum areas, which are prone for contagious diseases. Polio virus was not reported from India since the year 2011. According to WHO 2014 survey between the years 1978-1995 India has seen about 50,000 to 100,000 children were infected with poliomyelitis that is a worst period in the history (WHO, 2014).

Symptoms

Polio is highly dangerous and epidemic disease caused by virus. This polio virus directly infects or attacks the nervous system of the child lead to total paralysis within few hours. This disease may spread through infected person's stools, polluted water and contaminated food. The intestine of the human body is the host for this virus. The main symptoms are high fever, head ache, fatigue, stiffness in the neck, vomiting sensation and pain in limbs; it may lead to irreversible paralysis in the legs**.**

RESULT AND DISCUSSION

Polio 1, 2 and 3 are called serotypes also called as P1, P2 and P3. Though the polio virus disease was eradicated throughout the India, unfortunately an active strain of wild poliovirus (P2) strain was detected from drainage water of Hyderabad city, this strain is also reported from Uttar Pradesh, Bihar, Gujarat and also the capital city of India, the water samples were collected from Amberpet nala, Hyderabad and other places showed P2 strain of poliomyelitis, that means the P2 strain is resistant to polio vaccine and in dormant condition for a long period, it is understood that the polio vaccine had only P1 and P3 strains. This is due to P2 strain virus was not identified for a long time. After a gap of one decade it was identified in the polluted water which is contaminated with stools. Chief Programme Officer, National Health Mission, Telangana state says the P2 strain was not there in the vaccine (2016). According to Krugman *et al* 1966 and Fine and Carneiro 1999 (Fine and Carneiro, 1999) Majority of isolate were vaccine serotypes 2 that is P2.

As a precautionary measure to eradicate the polio disease the Telangana government sounded a global alert on this issue and imported polio vaccine from Geneva World Health Organization and more than three lakh children were administered the vaccine. As there is no cure for the Poliomyelitis, on the basis of the symptoms of the infected persons, he or she is advised to have more relaxation, body exercise is not advisable, and a proper nutritious diet and medicine for pain killing (Marguerite Yin-Murphy et al., 1996). Two types of vaccines are recommended by WHO, one is for the Inactivation of Polio Virus (IPV) and the other one is Oral Polio Vaccine (drops) (OPV). In India only OPV is in use, where as IPV is used in USA (Centers for Disease Control and Prevention, 2011). The severity of infection varies, some may not have symptoms of the infection, the second category may not have non paralytic nature and third one will have paralytic polio symptoms (Johns Hopkins, 2012).

The interaction of the host viruses is the poly protein under goes different stages of reactions and reaches a definite conclusion by the viral protease leading to three compounds of proteins P1, P2 and P3. Whereas the compounds P2 and P3 are under go some reactions in to replications that is RNA polymerase enzyme synthesizes to RNA template.

Conclusion

As the P2 and P3 has the capacity to replicate, in our case only the P2 remained in dormant condition for a long time may be due to the lake of suppressing agent in the vaccine. Whereas P1 and P3 serotypes have the controlling vaccine. There is no cure for polio. Only the preventive measures are helpful, like polio vaccine for number of times , generally in our country the polio vaccine is given three or four times for a child, but the polio drops can be given multiple times. This Disease can be eradicated by educating the slum dwellers, creating awareness through IEC method (Information Education and Communication) programmes. After 3 or 4 doses of polio vaccinations (OPV) for children It is suggested that the immune study should continue.

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