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EPIDEMIOLOGICAL REVIEW OF WEST NILE FEVER AMONG CHILDREN IN INDIA

Introduction

West Nile Fever is caused by West Nile Virus belongs to the Japanese Encephalitis Virus antigenic complex under family Flaviviridae. West Nile Virus is maintained in nature in a cycle involving transmission between birds and mosquitoes. Humans, Horses and Mammals can be infected. Birds acts as both carriers and amplifying host for West Nile Virus. Some birds species especially the crow family (corvidae) are more susceptible to the virus than others. Migratory birds are important in West Nile Virus transmission. The West Nile Virus affected areas of the world were distinguished as old versus new in a depicted world map [1]. The present review showcase the historical and epidemiological perspectives of the virus, genetic diversity of prevailing lineages and clinical spectrum associated with its infection. Emergence of the virus has been discussed in special context to India because of co-circulation of different West Nile Virus lineages/strains along with other flaviviruses.

Goal

This is a review article which helps us to study about the Emergence of west Nile virus in different parts of India. The purpose of this article was to describe the epidemiological characteristics of WNF that spreads in different parts of India such as Bombay, Karnataka, Madhya Pradesh and Kerala.

Material and methods of research

We searched articles published in NSCID, PubMed, ASTMH using the keywords «WNF», «Japanese Encephalitis in India», «West Nile Fever in India». The incidence, aetiology, prevalence, patient demographics, level and severity of infection, complications and mortality were reviewed from the articles. This review only included papers on human beings and that were published in English.

The results of the research and their discussion

The first recognized epidemic of WNV was reported from Haifa, Israel, during 1951, where a total of 123 cases were recorded, with symptoms presenting with febrile illness, exanthema, lymphadenopathy and angina [2]. Concurrently, WNV was isolated from febrile children. In India, antibodies against WNV in humans were first detected from Bombay (now Mumbai) during 1952. Subsequently, serologically confirmed WNV cases were reported from

Vellore and Kolar districts of Karnataka during encephalitis epidemics in 1977, 1979 and 1981. In western countries, WNV infections were found to be higher among elderly patients.

However in India, children succumbing to WNV infection were frequently observed. WNV was isolated from brain tissue of three children who died of encephalitis in the southern region of India.

During the late 2009 and the early 2010, WNV cases were reported from patients presenting with ocular complications in Tamil Nadu. Acute flaccid paralysis (AFP) due to WNV infection has also been reported from Kerala during 2014. This was an unusual phenomenon because poliovirus has been the common cause of AFP in India. Characterization of WNV PCR-positive samples revealed circulation of lineage I Table 1.



Figure 1 – The outbreak of West Nile Fever

In 80 % of the infected people, the disease is asymptomatic. Severe infection may even cause neurological diseases like West Nile encephalitis or meningitis or West Nile poliomyelitis or acute flaccid paralysis. Also, there are reports of WNV-associated Guillain-Barré syndrome and radiculopathy. WNV during 2011 Kerala outbreak. In the eastern State of West Bengal, WNV was reported in 2017 [3].

Table 1 – Different lineages in India with its vector and strains

Lineages	Year	Vector	Representative Strains
1a	1968	Fruit Bat	AY944239
5(1e)	1957		
	1955	Culex Vishnui	AY944245
	1982	Cx Vishnui	AY944243
	2008	Human	AY944247
	2007	Human	JQ037832
	1980	Human	HQ246154
	1980	Cx Triatenorhychust	AY639639
	1980	Cx Vishnui	AY639642
	1980	Human	AY639642
		Anopheles Subpictus	AY639642

Conclusion

WNV continues to pose an emerging threat to public health worldwide. The distinction of WNV epidemic into old and new provides a clear understanding on its epidemiology. This review highlights the importance of continuing need for careful monitoring of disease epidemiology, implement interdisciplinary approach to surveillance and research programmes in parallel to management of cases [5]. Severe illness can occur in people of any age; however, people over 60 years of age are at greater risk. People with certain medical conditions, such as cancer, diabetes, hypertension, kidney disease, and people who have received organ transplants, are also at greater risk. There are no vaccines to prevent or medications to treat WNV in people. Fortunately, most people infected with WNV do not feel sick. NIAID provided initial support to the biotech firm Acambis to develop a live attenuated recombinant vaccine for WNV called ChimeriVax [4].

LITERATURE

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ANTIBIOTIC RESISTANCE IN CHILDREN

Introduction

Antibiotic is a medicinal preparation, that act against bacterial infections. The invention of antibiotics is a major revolution in modern medicine world. The mechanism of action of antibiotics is to kill bacteria, that prevent bacterial infection and further spread of the infection.

Antibiotics usage in children is different from the usage in adults. There are changes in dosage and frequency. Most of the infections cause in children tend resolve by its own without any treatment. Indication of antibiotics in child are to treat health conditions, that are unlike to resolve on its own such as acne, to speed up the recovery, such as kidney infections, to treat infections that are not serious but prompt to spread to other people, skin conditions such as impetigo and sexually transmitted disease such as chlamydia, to treat health problems that could develop serious or life threatening complications such as pneumonia and cellulitis.

Goal

To evaluate the development of antibiotic resistance of children over time due to different etiologies, to control the antibiotic resistance further development in children and the preventive measures that could taken to avoid the future health risks.

Material and Method of research

The analysis and generalization of modern medical scientific literature on antibiotic resistance in children.

The results of the research and their discussion

Antibiotic resistance is bacteria or fungi pathogens develop the ability to defeat the medicinal preparation that design to kill them and cause more severe infection that is difficult in treatment and prevention of spreading. Antibiotic resistance is an emerging threat in children worldwide. According to recent studies in WHO, infections caused by multidrug drug resistant (MDR) bacteria are 700 000 deaths in all ages, among them 200 000 deaths are newborns. In Europe, MDR infections in children are 30 % of total cases. Middle East, 90 % newborns with sepsis are drug resistant. In South East Asia 83 % of pediatric patients have E.coli resistant to first line antibiotic therapy were reported. In Sub Sharan Africa 66 % of neonatal sepsis and meningitis were found to be cause by bacteria resistant to antibiotics [1]. In USA study, 20 % of pediatric patients treated with colistin to infections that are caused by already MDR Gram negative bacteria developed resistance [2]. Up to 40 % of the bacterial infections in newborns are resistant to standard treatments, leading to an estimated 214 000 newborn deaths each year from drug resistant infections.