

Promote public awareness about antibiotics. Rapid diagnosis will be able to treat the infection on early stages and prevent further complications. In 2017, only 2 out of 37 new antibiotics being developed in adults were being studied in children. Therefore new antibiotics should be developed for children.

According to WHO, if misuse of antibiotics is not change, drug-resistant diseases could cause 10 million deaths each year by 2050 [1].

Conclusion

Antibiotic resistance is a serious problem in worldwide. Preventive measures for antimicrobial resistance has to be improved, if not children mortality rate will be increased due to simple infections, that were previously treatable. To treat already multiple drug resistant infections, new antibiotics study on children should be enhanced.

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EPIDEMIOLOGICAL REVIEW OF CHIKUNGUNYA FEVER IN INDIA

Introduction

Chikungunya is a mosquito-borne viral disease caused by the chikungunya virus (CHIKV), an RNA virus in the alphavirus genus of the family *Togaviridae*. The name chikungunya derives from a word in the Kimakonde language, meaning «to become contorted». CHIKV was first identified in the United Republic of Tanzania in 1952 and subsequently in other countries Africa and Asia. Urban outbreaks were first recorded in Thailand in 1967 and in India in the 1970s. Since 2004, outbreaks of CHIKV have become more frequent and widespread, caused partly due to viral adaptations allowing the virus to be spread more easily by *Aedes albopictus* mosquitoes. CHIKV has now been identified in over 110 countries in Asia, Africa, Europe and the Americas. All regions with established populations of *Aedes aegypti* or *Aedes albopictus* mosquitoes have now experienced local mosquito-borne transmission. CHIKF was reported in India in 1963 for the first time. After a period of quiescence lasting up to 32 years, CHIKV re-emerged in India in 2005. Currently, every part of the country has become endemic for the disease with outbreaks resulting in huge economic and productivity losses. Several mutations have been identified in circulating strains of the virus resulting in better adaptations or increased fitness in the vector(s), effective transmission, and disease severity [1]. CHIKV evolution has

been a significant driver of epidemics in India, hence, the need to focus on proper surveillance, and implementation of prevention and control measure in the country. Presently, there are no licensed vaccines or antivirals available; however, India has initiated several efforts in this direction including traditional medicines. In this review, we present the current status of CHIKF in India.

Goal

The study was conducted to review CHIKV evolution (over time and space), outbreaks, the disease spread, prevention and surveillance systems in India over last decades.

Material and methods of research

The search of information was conducted through the research of scientific articles and systematic literature and the results were screened for the relevance review topic and also new articles were added based on the clinical knowledge of the author on the specific topic. Statistical information was also obtained from clinical trials conducted on India.

The results of the research and their discussion

Chikungunya virus is transmitted by mosquitoes, most commonly *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus*, which can also transmit dengue and Zika viruses. These mosquitoes bite primarily during daylight hours. They lay eggs in containers with standing water. When an uninfected mosquito feeds on a person who has CHIKV circulating in their blood, the mosquito can ingest the virus. The virus then replicates in the mosquito over several days, gets to its salivary glands, and can be transmitted into a new human host when the mosquito bites them. The virus again begins to replicate in this newly infected person and reaches high concentrations in their blood, at which point they can further infect other mosquitoes and perpetuate the transmission cycle. The illness was initially diagnosed as a «dengue-like» disease until laboratory evaluation confirmed CHIKV as the source of illness. Since then, many CHIKV outbreaks have occurred that have helped to further characterize chikungunya fever. The incubation period for chikungunya fever is typically between 3–7 days (range, 2–12 days). Not all individuals infected with the virus develop symptoms. Serosurveys indicate that 3–25 % of persons with antibodies to CHIKV have asymptomatic infections. Symptoms of CHIKV infection start abruptly with fever (temperature, usually > 38,9 °C). The fevers typically last from several days up to 2 weeks and can be biphasic in nature. Shortly after the onset of fever, the majority of infected persons develop severe, often debilitating polyarthralgias. The lower extremity arthralgias can be severely disabling, resulting in a slow, broad-based, halting gait, which can persist for months [2]. Published reports suggest that rash is another common symptom [2]. However, the portion of individuals with rash is highly variable between studies, making it a less reliable sign of the disease. When it occurs, the rash appears after fever onset and is typically maculopapular involving the trunk and extremities but can also involve palms, soles, and the face [3]. Blood test abnormalities, such as leukopenia, thrombocytopenia, hypocalcemia, and a mild to moderate increase in liver function test results, are seen with acute infection but are not specific and do not occur frequently enough to be diagnostic [2]. Death caused by chikungunya infections appears to be rare. However, increases in crude death rates have been reported during the 2004–2008 epidemics. With CHIKV infections, older individuals with underlying medical conditions and individuals with coinfections appear to be more likely to suffer complications and to have a higher risk of death [2].

Chikungunya outbreaks have been reported from India during the period 1963–1973 and 2005–2019. The first CHIKF outbreak in India was reported from Kolkata (Calcutta), West Bengal, in 1963. However, retrospective serological studies have shown that chikungunya existed in India prior to 1963. In 1964, Chennai, Pondicherry, and Vellore reported outbreaks of chikungunya. In 1965, chikungunya outbreaks were reported from Visakhapatnam, Kakinada, Rajahmundry and Nagpur, in 1973 in Barsi in Maharashtra and some authors have opined that

lack of surveillance between 1973 and 2005 might have been the reason for lack of CHIKV reports. However, the re-emergence of the virus could be due to several other reasons. CHIKV is known to have three genotypes, namely, West African (WA), Asian and East Central South Africa (ECSA) genotypes and the circulating virus in India until the 1970s have been reported to be of the Asian genotype [1]. After the emergence of CHIKV in the Indian Ocean islands in 2005, CHIKV re-emerged in India after 32 years, affecting Hyderabad and Ananthapur district of Andhra Pradesh in South India and eventually affected 1.4 million people in 13 states with huge economic and productivity loss of 391 million rupees. Ahmedabad city of Gujarat and Kerala state were the worst affected places. The 2005–2006 outbreak in India was caused by the ECSA genotype. The E1-A226V mutation of the virus and their adaptation to the *A. albopictus* resulted in increased susceptibility among pediatric population, neurological complications, as well as mortality associated with this outbreak. Currently, CHIKV is endemic in 24 Indian states and 6 union territories indicating that this as an important health problem in our country [1]. Currently, there is no licensed therapeutics or vaccines for the treatment of CHIKV infections in the market. However, this section describes various efforts at different stages of development, both of therapeutics and vaccines against CHIKV. There are no approved antivirals against CHIKV diseases. Hence, the current therapies mostly involve in management of symptoms using non-salicylate analgesics and non-steroid anti-inflammatory drugs (NSAIDs). Apart from the conventional drug research, India is also focusing on the research on the traditional system of medicines in our country, like Ayurveda, Unani and Homeopathy which is showing promising results [1]. There were several preventive measures taken by the government of India to stop the spread of the disease, the study says that Control Measures were taken by District Health Authorities and regular monitoring of the situation was done by District Medical & Health Officer, Deputy Medical & Health Officers, Programme Officers and District Malaria officers. District level coordination meetings were held, Instructions were issued to all Department Heads to take measures for prevention and treatment of Chikungunya fever, Medical camps were conducted in the affected area, Information, Education and Communication activities: Pamphlets containing information about the disease printed in local languages and distributed to all the Hospitals and Primary Health Centres in the areas. Posters and advertisements in local languages were also issued, Measures for source reduction were taken, Pyrethrum space spray (2 %) was used in affected areas, Anti-larval measures with Temephos (1 PPM) were carried out.

Conclusion

Chikungunya outbreak is a huge public health problem in India, therefore it is important to ensure its prevention and control measures. A number of new mutations of the virus, have been reported in Indian studies that shows the effect of adaptation of the virus, its severity and the disease spread. More research is required to say the significance of the mutations in India. And there is no licensed vaccine available for this disease even though some anti-viral drugs have some effectiveness on CHIKV, studies on clinical efficacy is still needed. Since there is no medicine for Chikungunya in allopathy, people in India increasingly turning to Ayurveda (traditional Indian medicines). Also more research is needed to prove the efficacy of Ayurveda medicine. Avoiding mosquito bites by the simple measures like use of mosquito repellents, expulsion of standing water where mosquitos can lay eggs and minimization of skin surface exposed to mosquito bites are the only ways of prevention of this disease. Considering all these recent data, CHIKV is an arboviral disease that all physicians should be prepared to encounter.

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CHILDHOOD TUBERCULOSIS IN SRI LANKA

Introduction

Tuberculosis (TB) is an infectious disease caused by the bacillus – *Mycobacterium tuberculosis* (MTB). Tuberculosis commonly affects the lungs (pulmonary TB) but can affect any other organ in the body (Extrapulmonary TB). It is an airborne infection. Poverty, overcrowding and poor living conditions are contributing to the increased transmission of TB. Due to the immaturity of the immune system, children are at higher risk of progressing to active disease than adults and developing complicated forms such as TB meningitis and miliary TB. A total of 1.6 million people died from TB in 2021. Worldwide, TB is the 13th leading cause of death and the second leading infectious killer after COVID-19. In 2021, an estimated 10.6 million people fell ill with TB worldwide. Six million men, 3.4 million women and 1.2 million children [1]. Sri Lanka is considered as a middle burden country for Tuberculosis. There are around 8500 to 9500 cases of TB detected each year. Out of this, childhood TB cases ranged from 250 to 350 which were around 3 % of the total case burden of the country.

Goal

The overall medium-term goal for TB control is to reduce morbidity, mortality and transmission of TB until it is no longer a public health problem in the country. Therefore, the main goal of this article is focused on provide an overall outlook on Pediatric Tuberculosis and evaluate how Republic of Sri Lanka handles this challenge. In this article we discuss occurrence statistics of Tuberculosis in Sri Lanka as well as its diagnosis, management and preventive criteria.

Material and methods of research

The global level statistics and percentages were referred from the World Health Organization (WHO) official website. The statistical data related to Sri Lanka were taken from the Sri Lankan College of Pediatricians official website (slcp.lk), Annual Epidemiological Report 2021 published by Ministry of Health and The National Programme for Tuberculosis Control and Chest Diseases (NPTCCD) database. The other related data were taken from PubMed publications and other resources (see References below).

The results of the research and their discussion

According to the recent estimates, there were 10.6 million peoples with active TB around the globe in 2021 [1]. Out of this, 1 million (10 %) were children below 15 years of age. Both girls and boys were almost equally affected. There were an estimated 1.3 million deaths among HIV negative TB patients in 2021. Out of the total deaths, 15 % were among children with TB. HIV has a great impact on the survival of children with TB. Children accounted for 10 % of the total deaths among HIV-TB co-infected patients. In countries with a high burden, children account for around 25–40 % of the new cases and in low burden countries, it is around 4–7 %. But the actual caseload may be much higher than this.