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A SYSTEMATIC REVIEW AND ANALYSIS OF DENGUE INFECTION IN MUDDEBIHAL TALUK, VIJAYAPUR(DIST),KARNATAKA INDIA

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ABSTRACT:

Dengue infection is a mosquito-borne disease caused by dengue viruses, which are carried by several species of mosquito of the genus Aedes, principally Aedes aegypti. Dengue outbreaks are endemic in tropical and sub-tropical regions of the world, mainly in sub-urban and rural areas. The outbreak is one of the top ten diseases causing the most deaths worldwide. According to the World Health Organization (WHO), dengue infection has increased 30 fold globally over the past five decades. Many researchers are working on measures to prevent and control the spread. Researchers have been gathering and analyzing data to better identify the relational factors driving the spread of the disease, as well as the development of variety of methods of predictive modeling using statistical and mathematical analysis and Machine learning. Our analysis consists of the available Data sources, Data preparation techniques, Data representations. Dengue is one of the most threating diseases in Karnataka. This disease affects life of many people in the state. However government taken many precaution to control this disease. But it cannot be controlled fully by government. The main cause for this disease is female mosquitoes. It is typically found in wide spread hot region. The symptoms for this disease will vary from one person to another person. Dengue infection has endangered 2.5 billion and more population all over the world.

KEYWORDS: *Dengue Fever (DF), Dengue Hemorrhagic Fever (DHF), Aedes aegypti.*

INTRODUCTION

Dengue a major public health threat globally, is a vector borne disease caused by arbovirous infection. It is most regular contamination with transmission happening in at any rate 128 nations and upwards of four billion individuals in danger. The WHO has assessed that about five lakh individuals worldwide with serious type of Dengue require hospitalization every year, out of which 2.5% of the individuals bites the dust. It is assessed that 92 million obvious Dengue diseases happens all inclusive, of which 70% weight of contaminations is contributed by the Asian nations. India alone contributes for about 34% of the worldwide weight of dengue. Since 2001, pattern of dengue cases has been expanding altogether in India. At first it was constrained uniquely to less states in India. Be that as it may right now, dengue contamination has turned out to be predominant in practically every one of the states. As of late dengue getting to be endemic in rustic territories. Abrupt ascent in the weight might be credited to the progressions in natural variables, urbanization

and deficient vector control measures. In India, both Aedes aegypti and Aedes albopictus are the fundamental vectors for dengue transmission. It can show clinically as a gentle fever or serious dengue hemorrhagic fever. In the most extreme structure, it can even present as dengue stun disorder that can undermine the patient's life through expanded vascular penetrability and stun. Dengvaxia, a live weakened tetravalent immunization, has been created and is under stage three assessment in numerous nations (Amarasinghe A, Wichamann O, and Margolis HS 2010). In India it is as yet not endorsed because of absence of adequate clinical preliminaries. Despite the fact that it can cause hazardous disease, it tends to be effectively anticipated by certain control measures. Including people group through instructive crusades and broad communications can be a viable methodology in forestalling the contamination.

AIMS AND OBSECTIVES

A review and analysis of dengue infections are not reported from Muddebihal Taluk, Vijayapur (Dist) of Karnataka. Therefore the present investigation was initiated to record the cases of dengue fever in ten infected villages.

MATERIALS AND METHODS

From January 2019 to May 2019, *Aedes aegypti* mosquitoes were collected from disease infected villages of Muddebihal Taluk. Their larvae are also collected with adults from water filled containers indoor and around the houses. Adult mosquitoes were collected by vector preventive supervisors of health department using human bait. Larvae and adults were visually identified as members of *Aedes aegypti.* They are stored in liquid nitrogen for subsequent dengue virus detection. The survey was conducted from January 2019 to May 2019 with the help of dengue supervisor, health department primary health center Muddebihal (Govt of Karnataka). A community based cross-sectional survey was done among 100 individuals. The examination was perception of the sanitation rehearses, water accumulation propensities, water compartments for mosquito rearing, reproducing locales, waste framework and individual assurance measures against mosquitoes. The ecological examination was completed with the assistance of records of temperature, precipitation and moistness from the meteorological division. The influenced squares, all out populace of these influenced towns was 1000 for each town. They were for the most part ranchers and works by occupation and some of them moved for work to dengue endemic territories and visited their homes every now and again. Laboratory tests that can confirm dengue fever involve using a sample of blood. Several tests that can be used for diagnosis include IgMAC-ELISA. Health workers informed about a sudden increase of fever cases that occurred during January 2019 in ten villages of Muddebihal Taluk, Vilayapur (Dist) Karnataka India. Clinically suspected dengue cases were tested with a rapid test kit such as NS1 antigen (Non-structural antigen1 rapid diagnostic) test kit.

DATA COLLECTION AND ANALYSIS

Trained health workers worked with the primary investigator to collect data in a pre-designed format. They conducted house to house surveys to identify fever cases in the affected villages and also looked for any affected patients from 10 villages admitted at Muddebihal health center. The extents of cases by age gathering and sex was calculated(Table-1). The out break was portrayed regarding date, time, spot and individual. An entomological examination was done to comprehend the thickness of vector liable for viral transmission (Wills,B.2008). A larval review was directed via looking through mosquito reproducing destinations inside and outside houses utilizing the single larval overview (SLS) strategy. Hatchlings were recognized by visual review of their appearance and development in water by masters.

Distribution of suspected cases of Dengue fever by age and sex at Muddebihal Taluk, Karnataka India during January to May 2019

Sl. No	Village	Age	sex	Date	Referred	PHC
1	Tangadagi	5 yrs	Male	5-1-2019	DPHC	Muddebihal
2	Kandaganur	1.4 yrs	Male	25-1-2019	DPHC	Kalagi
3	B.Salawadagi	4 yrs	Male	23-1-2019	DPHC	Kariganur
4	Devoor	24 yrs	Female	10-4-2019	DPHC	Tangadagi
5	Talikoti	4 yrs	Female	10-4-2019	DPHC	Talikoti
6	Mukihal	16 yrs	Female	5-5-2019	DPHC	Konnur
7	Hadagali	30 yrs	Male	12-5-2019	DPHC	Garasangi
8	Nalatwad	26 yrs	Male	20-5-2019	DPHC	Nalatwad
9	Nebageri	5 yrs	Male	20-5-2019	DPHC	Tangadagi
10	Bavoor	65 yrs	Female	23-5-2019	DPHC	Madikeshwar

Fig -1 *Aedes aegypti* (Female Mosquito)

DISCUSSION

The dengue Fever (DF) and Dengue Hemorrhage Fever(DHF) are diseases caused by the infections against dengue virus originated in monkeys and independently jumped to humans in Africa between 100 to 800 years ego(Ranjit S, Kissoon N,2011). Virus is a single stranded RNA virus of family Flaviviridae and genus Flavivirus. Dengue fever is an arbovirus transmitted by mosquitoes of the genus *Aedes.* The primary vector is the female *Aedes aegypti*(Fig.1) mosquitoes that are commonly found in the tropical and sub-tropical countries of the world. *A.aegypti* feeds on the blood of a person infected with dengue virus and requires 8 to 10 days of incubation period before it can transmit the virus to another human. Vector control is known to be a good method for prevention of vector borne dengue. There are several reports from India which have demonstrated resistance of mosquito vector with anti-larval substances like DDT and Diendrin but susceptibility to Malathione is reported. Temephos is relatively more effective in controlling *aedes aegypti* followed by Fenthion, melathione and DDT. Periodomestic thermal fogging reduced the resting and biting for the three days after treatment. Plant based repellent against mosquito borne diseases have also been described. Flovonoid compounds derived from *poncirus trifoliate* compounds have various activities against different life stages of *A.aegypti.* leaf extract of *Eucalyptus alba* have shown potential for controlling mosquitoes. Dengue continuous to cause considerable concern in the country because of its widespread endemicity, the minimal success of vector control strategies, the possibility of severe disease caused by sequential infections by a different serotype, the potential for fatal outcomes and the consequent social and economic burden. The disease is predominantly reported among children.

RESULT

During investigation a total of ten affected patients were identified in the ten villages of Muddebihal Taluk, Vijayapur (Dist) Karnataka, India. There was no history of dengue cause over the previous four years. The majority of cases were in the age group of one year four months to thirty years. Of 100 affected patients 10% were positive for NS1 antigen test and their blood samples were sent for ELISA test. Use of the NS1 ELISA test was recommended by the Karnataka Govt for confirmation of dengue at public health laboratories.

CONCLUSION

From current study it may be concluded that dengue virus infection is endemic in Muddebihal Taluk, Vijayapur (Dist) Karnataka. Male to female ratio of the dengue fever was about 1:1(Table-1) among the total infected population. Fever was observed as the most common symptom among all the dengue infection cases reported. The public health department of Karnataka should take a proper consideration to avoid and control dengue epidemics in future. As the prevention of dengue fever lacks proper vaccine, the main preventive strategy is the awareness building in the community regarding the source reduction process by emptying the man made containers or dispose those in a proper way. Much efforts to be taken to promote the participation of the community in the action programme for eliminating vector breeding sites.

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