Survey of Dengue Positive Patient with respect to Age and Gender

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Abstract:

The dengue fever, also known as life-threatening disease, is caused by dengue virus. It is also referred to breakbone fever which is one amongst the major deadly diseases around the world transmitted by blood-feeding-mosquito. We have carried out a survey where 4950 samples were taken from suspected cases of dengue from JSS Hospital Gujarat for treatment from the regions in and around Gujarat, between July 2015 to August 2019. We have studied the Sociodemographic characters and found some interesting results.

Keywords: Dengue , Survey ,Gujarat ,Socio demographic character , 2015-2019 , blood feeding mosquito

Introduction

Pradeep raj et al. [1] discussed the studied the healthcare organizations and industries produces huge amount of data every day. This vast information can be extracted and analyzed to obtain patterns which can be used to for cast or predict the future events. Rameshwar et al [2] studied the sentiment Analysis (SA) is the study of the datasets available over web that contains fruitful information. Machine learning techniques have a great role in computer science. Sajana et al. [3] said that the dengue infection belongs to the family of virus, Flaviviridae, consisting of four serotypes which spread through the chomp of contaminated Aedes mosquitoes. Dinesh et al. [4] found that dengue fever is a mosquito-borne tropical disease caused by the dengue virus. It is a life-threatening disease lots of people died due to dengue because its symptoms are not detected at early stages many persons thought that it was a normal fever or headache so that they ignore it which because there are in dangerous situations and worst case, they lose their life. Raghavendra et al. [5] carried out research to create a system that can use the available relevant information about the factors responsible for the spread of dengue and; use it to predict the occurrence of dengue within a geographical region, so that public health experts can prepare for, manage and control the epidemic. Data mining is concerned with the secondary analysis of large databases in order to find previously unsuspected relationships which are of interest or value to the database owners. Since Statistics provides the intellectual glue underlying the effort, it is important to involve this field, as they pave real opportunities for researchers to make significant contributions. It is probably no exaggeration to say that most Statistics are concerned with primary data analysis. That is, the data are collected with a particular question or set of questions in mind. Indeed, entire sub disciplines, such as experimental design and survey design, have grown up to facilitate the efficient collection of data so as to answer the given questions. In fact, we might define data mining as the process of secondary analysis of large databases aimed at finding unsuspected relationships which are of interest or value to the database owners. According to data provided by National Vector Born Disease Control Program, Gujarat have the highest mortality rate in India whereas as per WHO, 40% population of world is affected by this disease. A lot of viral infection exists in the world, but dengue fever virus infection causes more illness and death. It comes severe for the people who have weak immune system. An early diagnosis of this disease can help for quick recovery in patient. It can be broadly classified into three categories which are Dengue Fever (DF), Dengue Hemorrhagic Fever (DHF)andDengueShockSyndrome(DSS).Inallthethreetypes,DSSarethemost dangerous type of dengue fever and the recovery is even more difficult as compare to DF & DHF. The biggest problem with dengue fever is, it is

Vidhyayana - ISSN 2454-8596

An International Multidisciplinary Peer-Reviewed E-Journal
www.j.vidhyayanaejournal.org
Indexed in: ROAD & Google Scholar

identified only when patient is on very critically stage and unfortunately there is no special tool developed for identifying dengue within 1-2 days continues fever. There lots of type fever causes death but dengue fever has highest numbers of death. The proposed system will solve the problem by selecting a subset of useful feature from a set of features. One of the main objectives of the present study is to develop a control system to enhance the efficiency to dengue disease related to human. The developed using machine learning approaches can explore crisp and linguistic data with loosely defined boundary conditions for decision-making. It is implemented in the mentioned contexts for the comparison and validation with the data obtained from Medical College & Hospital, Gujarat. The proposed using machine learning approaches controller makes the machine to take intelligent decisions as similar to that of humans.

Methodology

A total of 4950 samples were collected from clinically suspected cases of dengue who either reported directly or who were referred to JSS Hospital Gujarat for treatment from the regions in and around Gujarat, between July 2015 to August 2019 were included in the study. The cases were divided into two groups, the first group comprised of those who had the illness within one week (1-5 days) and the second group with those who had illness between 6-11 days from the onset of illness.

Results:

Out of 4950 suspected cases, 4425 were positives. Year wise distribution of suspected dengue cases and positive cases during the study period is shown in **Table 1.** Out of 4425 positive cases, 2978 were males and 1447 were females. 1403 (31.7%) cases were observed in age group 4 to 15 years, 1449 (32.74%) cases were observed in 15-30 years age group and 921 (20.8 %) of cases were observed in 30-45 years age group. Results are shown in **Table 2.**

Discussions:

Seasonal trend in each year showed that there were very a smaller number of positive cases from January to May, the infection started spreading in June, reaching its peak in August, September and slowly declined by December. Majority of the cases were found in the month of July and August. However, in all 5 years maximum cases were recorded during the monsoon and post monsoon periods. Most of the positive cases were from rural areas when compared to urban areas. During the monsoon period, the occurrence of Dengue virus infection was seen not only in Surat District, but also in the neighboring districts.

4.0. Conclusion:

We have analyzed 4950 suspected cases, out that 4425 were found to positive. It was found that the number of cases in males were more than female and, in our study, we found that with the increase in the age the number of positive cases decreased. Our study is helpful for the other researchers who are working in this field.

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Legends to Tables:

Table 1: Age Distribution of study population

Table 2: Age and sex wise distribution of positive dengue cases

Table 1: Age Distribution of study population

Age in years	Number of cases	Percentage
0-15(> 3years)	1861	32.50%
15-30	1847	32.26%
30-45	1187	20.73%
45-60	640	11.17%
60-75 (<75)	190	3.31%

Table 2: Age and sex wise distribution of positive dengue cases

Age in years	Number of cases	Percentage
0-15(> 3years)	1449	32.74%
15-30	1403	31.7%
30-45	921	20.8%
45-60	499	11.27%
60-75 (<75)	153	3.45%
Male	2978	67.29%
Female	1447	32.7%