Prevalence of Dengu in the Srikakulam District

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Abstract: *Dengue is a most infectious disease in the tropical and subtropical regions of the world. The transmission of disease is mostly seen in the rainy season and its transmission rate is high. The wet conditions of the season make the disease to transmit rapidly by the vector. Causative agent is "Aedesaegypti". According to this project data the prevalence of dengue in the Srikakulam district during 2011 May-June is 2.77%.More positive cases are observed in the males than in females and that is between the 16-30 years age group. Even though the total number of positive cases are 4 from all the 144 cases they are consider as epidemiologically serious.*

Keywords: Aedesaegypti, Dengue, ELISA IgM detection, Prevalence rate, Sample collection.

1. Introduction

Dengue is one of the most serious mosquitos borne viral infection. Mainly effecting tropical and subtropical countries of the world. Dengue is a flu like viral disease spread by the bite of the infected mosquitoes, it is mainly caused by the mosquito called "Aedesaegypti". Dengue can caused by the any one of the 4 viruses (DEN-1, DEN-2, DEN-3, DEN-4).The first recognized dengue epidemics occurred almost simultaneously in Asia, Africa and North America in 1780. Figure: 1.0

2. Signs and Symptoms

Dengue fever usually starts suddenly with a high fever, rash, severe headache, pain behind the eyes, muscle and joint pains. Nausea, vomiting and appetite are common. Adults are usually sicker than the younger children most dengue infections results in the relatively mild illness but some can progress to dengue hemorrhagic fever in this case the blood vessels starts to leak and cause bleeding from the nose, mouth and gums. The time between the bite of mosquito and the star of symptoms averages 4-6 days, with a range of 3-14 days.

2.1 Aim

To know the prevalence rate of dengue in the Srikakulam district.

2.2 Objectives

1. Detection of IgM antibodies by conducting ELISA test.
2. Estimation of prevalence rate by age wise distribution.
3. Estimation of prevalence rate by sex wise distribution.

Materials
1. Vortex mixer
2. Incubator
3. Laboratory glass wares
4. Microplate reader
5. Disposable tips
6. Pipettes of volume 20 µl,100 µl,1000 µl
7. Blood Samples
8. Syringes (5 ml)
9. Omega diagnostic kit for ELISA

Reagents in Kit
1. Microtitre plate
2. Serum diluents
3. Negative control(-veIgM)
4. Positive control(+veIgM)
5. Wash buffer
6. Conjugate(HRP)
7. Dilute conjugate
8. Substrate(TMB)
9. Stop solution(H_2SO_4)

3. Methodology

This entire methodology was based on the ELISA test for the detection of IgM antibodies in the collected blood sample and ELISA process was carried by using the Omega diagnostic kit method. Entire process was done in "Rajiv Gandhi institute of medical and Science College, Srikakulam". All the blood samples were collected from the patients came from in and around of Srikakulam district to RIMS, Government Hospital.

3.1 Sample Collection

Blood sample was collected from the venous of the patient and it was allowed to clot and retract. Clotted blood was centrifuged and clear serum was collected.

3.2 Procedure

1. All the components and the test sera are brought to the room temperature, sufficient no of Microtitre wells were selected for the no of samples to be tested.

2. Test sera was diluted by adding the 20 µl of serum to 1000 µl of serum diluents and in that 100 µl of diluted samples along with the negative and positive controls were dispensed in the antigen coated wells.
3. Plate was covered with the lid and incubated at 37°c for 60 min, after incubation the contents in the plates were discarded and washed for 5 times with the wash buffer.
4. 100 µl of working strength conjugate was dispensed into the wells and were gently shaken for 1 min and incubated at 37°c for 30 min.
5. 100 µl of stabilized substrate was dispensed into the wells and were gently shaken for 1 min and incubated at 37°c for 20 min.
6. 100 µl of stop solution added to the each wells after substrate incubation, the wells which were having enzyme converted from blue to yellow and it indicates the presence of IgM antibodies.

4. Results

The column which was marked with yellow circle those wells are of my samples and the first two wells are of negative and positive controls and the next are the three patient samples who had come for dengue check up on that day. The total no of sample performed were 144 among that the no of positive cases were 4 in that most of the cases were found in the males than in females and that it was found more in the 16-30 years age people.
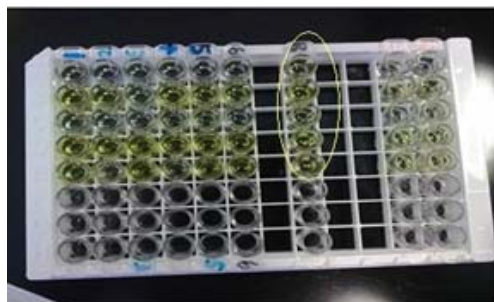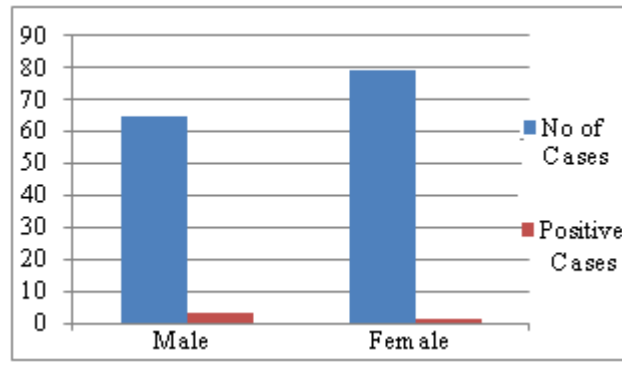

Figure: 1.1

4.1 Sex Wise distribution

Table: 1.0

S.No	Sex	No of Cases	Positive Cases
1	Male	65	3
2	Female	79	1

4.2 Graph

Graph: 1.0

4.3 Age Wise distribution

Table 1.1

S.No	Age	No of Cases	Positive Cases
1	1-5 years	Nil	Nil
2	6-15 years	17	Nil
3	16-30 years	48	3
4	31-60 years	72	1
5	Above 60 years	7	Nil

4.4 Graph
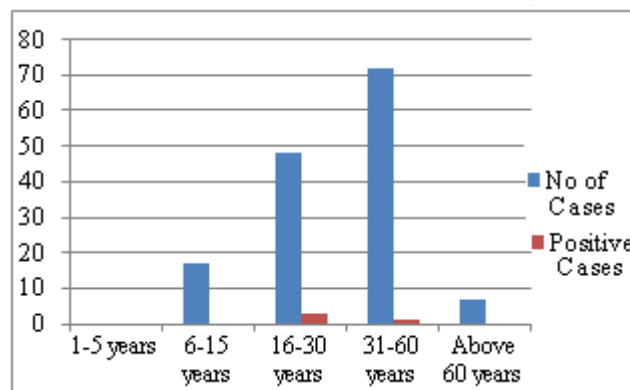
Graph: 1.1

4.5 Laboratory diagnosis

1. ELISA to detect the IgM antibodies
2. Strip immunochromatographic tests
3. Using radiolabelled probes
4. Immunofluorescence techniques
5. Detection of platelet counts

4.6 Treatment

Going to the natural therapies always better than chemical compounds, there are some natural therapies like raw leaves of papaya tree and parts of belladonna plant can cure the dengue. The most chemical compounds using for dengue were analgesics with acetaminophenol. Patients should take the plenty of fluids and he/she should eat the food which will increase the immune power.

5. Conclusion

Viral infections can be prevent by taking proper hygiene food and keeping the surroundings neat and clean, drinkingof hygiene water.

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