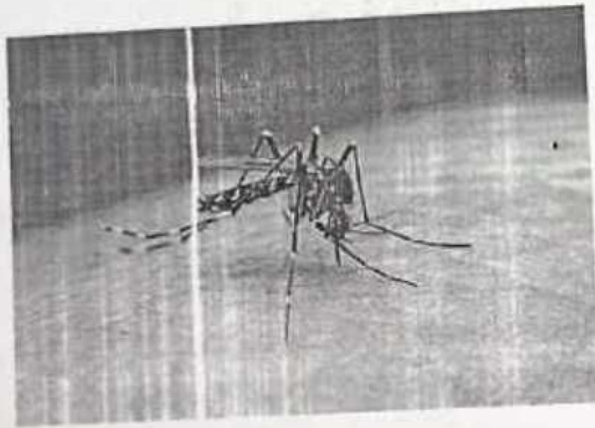# GOVT.DEGREE COLLEGE, HUZURNAGAR

DEPT.OF ZOOLOGY

STUDENT STUDY PROJECT ON DENGUE

Participants

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What is Dengue fever?

Dengue fever is a virus infection caused by the Arbovirus through the Arthropod, Mosquito *Aedes aegypti* and *Aedes albopictus* the virus t is a pathogen that causes Dengue fever (DF), Dengue hemorrhagic fever (DHF), Can lead to Dengue shock syndrome (DSS) it has four different serotypes (DEN-1, 2, 3, 4) and ever First reported epidemics in 1780 in Asia, Africa, and North America.
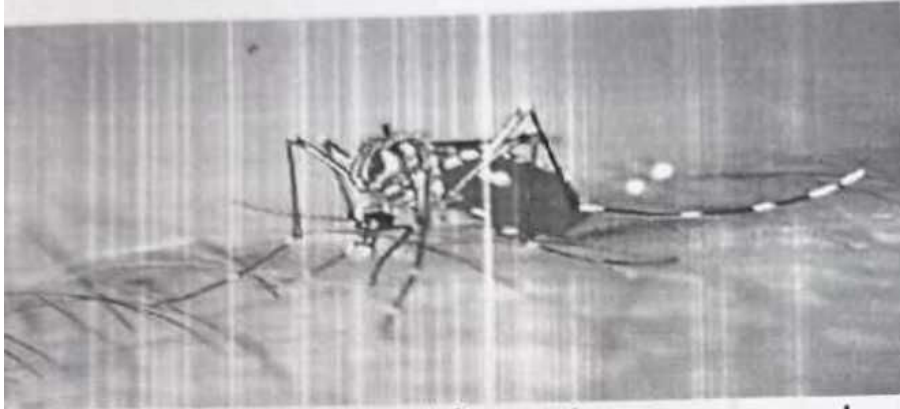

Aedes aegypti

Target tissues:

➢ Dengue induces cytokine production in cells

➢ Cytotoxic factor effects endothelial cells involved in most of the following:

- Heart
- Liver
- Kidneys
- Lungs
- Intestines
- Spleen
- Lymph nodes
- Brain
- Skin (inflammatory rashes)

Symptoms: DHF Fever:

- Headache
- Muscle and joint pain
- Dehydration
- Nausea and/or Haematemesis (vomiting of blood)
- Epistaxis (Bleeding from the nose, mouth, or gums)
- Haematuria (Blood in Urine)
- Pain behind the eyes
- Plasma leakage
- Respiratory distress
- Skin rash (Lesions)
- Diagnostic tests Virus isolation by infection of mice using infected mosquitoes
- Detection of IgM antibodies in the blood by PCR or Viral isolation (Serology)
- ELISA (Enzyme-Linked Immunoabsorbent assay)
- Thrombopenia
- Raised hematocrit

Skin rash
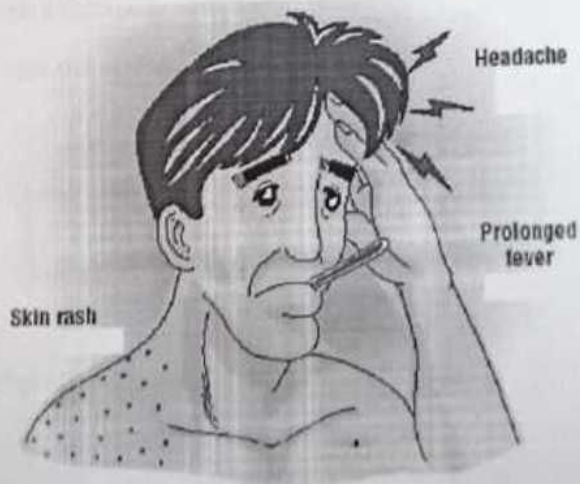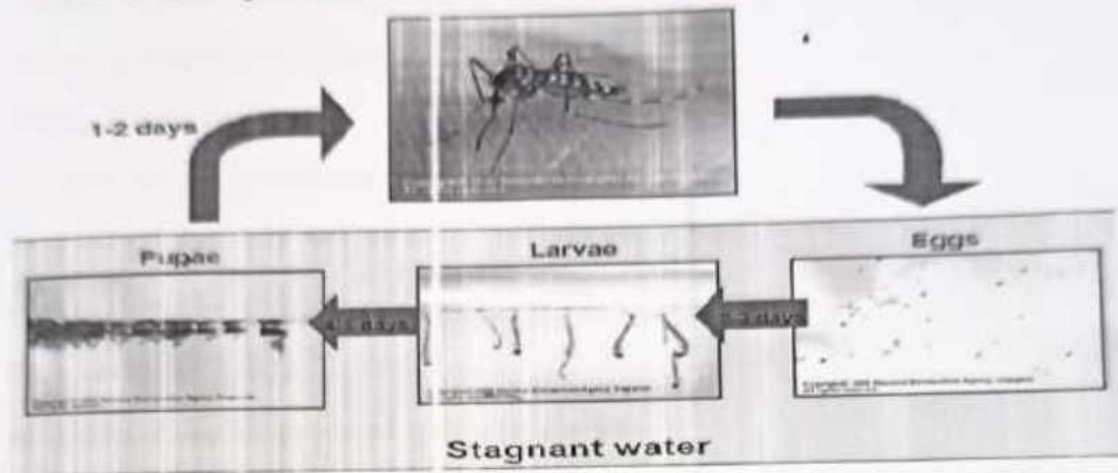
Skin rash

Headache

Prolonged fever

Diagnostic tests:

- Virus isolation by infection of mice using infected mosquitoes

- Detection of IgM antibodies in the blood by PCR or Viral isolation (Serology)
- ELISA (Enzyme-Linked Immunoabsorbent assay)
- Thrombopenia
- Raised hematocrit.

Life cycle of the *Aedes* mosquito

1-2 days

Pupae

Larvae

Eggs

Stagnant water

Pathogenesis and infection process of Dengue:

- Humans are initially infected through a mosquito vector
- Initial interaction with cell occurs with the viruses ability to infect cell
- Primary target, Phagocytes
- Virus uses cell receptor molecule to enter cell
- Cell receptor molecules include:
- Glycosaminoglycan
- Heparan Sulfate (Expressed in almost all cell types)
- Virus replicates in target organs
- Infects white blood cells and lymphatic tissues
- Virus is released and circulates in blood
- Alternate mosquito then bites host and receives virus.

Epidemiology:

- It Affects humans and this Is prominent in tropical environments, Ideal for Mosquito habitats
- Global warming is causing climate changes which is causing the disease to move to more environments .More habitats for mosquitoes to thrive in Spread has been increased by urbanization and population growth, Inability of mosquito control in countries is also a major factor.

Treatment:

- There is no specific treatment
- Relieving symptoms and complications:
- Plasma volume replacement
- Sedatives for restless patients
- Blood transfusion with patients with significant blood loss
- Aspirin should be avoided
- **Prevention:**
- All efforts of control are aimed against mosquitoes
- Elimination of breeding areas
- Actions to prevent mosquito bites (repellant, nets, and vapors)
- Vaccinations are pending
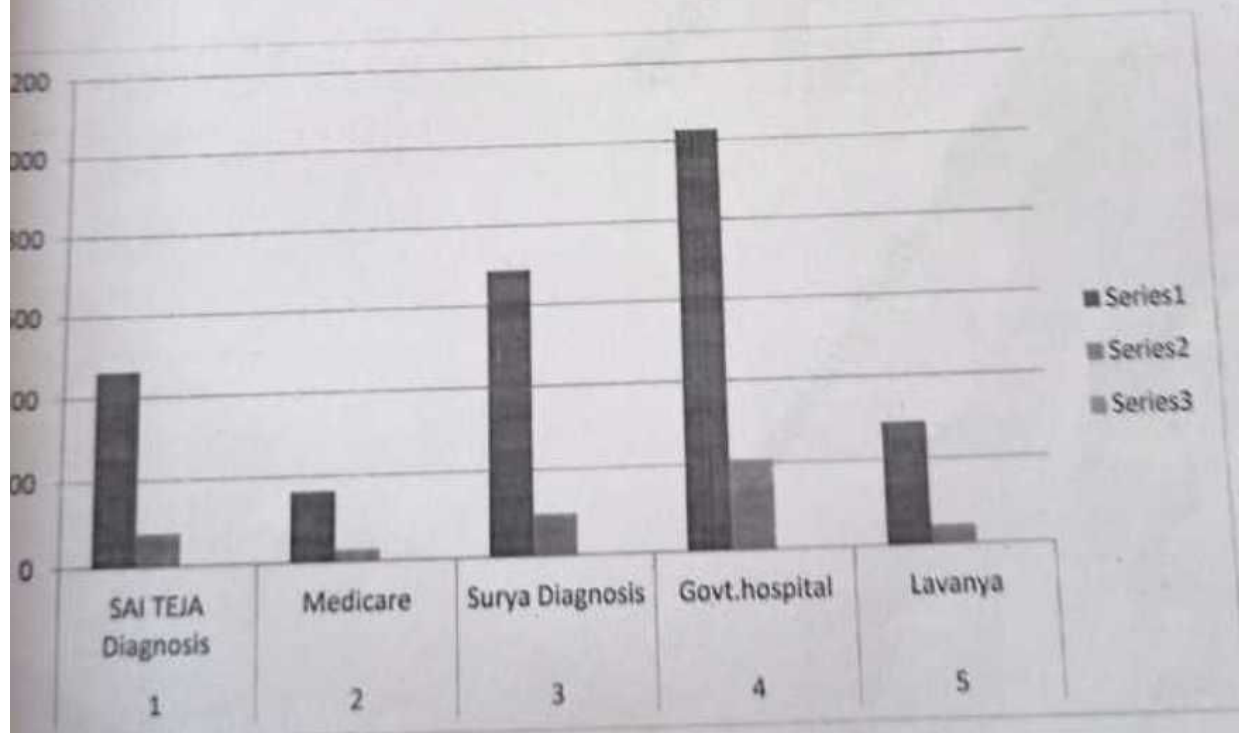- Problem is that the vaccination needs to prevent all four serotypes

DENGUE CASES DATA COLLECTED FROM VARIOUS DIAGNOSIS CENTERS IN HUZURNAGAR (January 2019 to December 2019)

Report:-

Sno.	Name of the Diagnosis Center	No. of Blood Samples collected	No.of positives cases	Infection Percentage
1	Sai teja Diagnosis	462	74	16%
2	Medicare Diagnosis	164	27	16.4%
3	Surya Diagnosis	687	95	13.8%
4	Govt.Hospital lab	1028	208	20.2%
5	Lavanya Diagnosis	287	43	15%

raphical presentation: