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''To THE SEROPREVALANCE OF DENGUE VIRUS AND ITS CORRELATION WITH LIVER FUNCTION TEST AT A TERTIARY CARE HOSPITAL KANPUR''

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ABSTRACT-

Introduction Dengue virus (DENV) the causative agent of most important arthopod-borne disease is transmitted to human by mosquitoes of Aedes family. Hepatic injury with dengue infection has been described since 1967. Liver dysfunction varies from mild injury with elevation of transmission to severe hepatocyte injury, resulting in jaundice hepatoxicity as well as deranged host immune response against the virus leading to hepatic dysfunction. **AIM** To study the seroprevalence of dengue virus and it's correlation with liver function test at a tertiary care hospital Kanpur **Material & Methods** A Total of 60 patients registered from 1st June 2024 to 30 November 2024 with the fever of dengue like symptoms where serologically tested for dengue fever using rapid immune-chromatography test (ICT) to detect dengue NS1 antigen, IgM and IgG antibodies were studied. ICT is a qualitative membrane based immunoassay test for the detection of dengue specific non structural protein 1 (NS1) antigen and antibodies in whole blood, serum or plasma.
The result were graded as reactive (no band) and the detection of at least one component (NS1 or IgM) was considered to be positive. **Result** Out of 60 Patients 33 were male and 27 were female out of which 7 were positive only for NS1,10 were positive for IgM and IgG,9 were positive for NS1 and IgG and 2 were positive for Ns1 IgG IgM tested serologically positive for dengue. Out of 28 positive patients LFT ranges were increased in 16 patients ALT (Alanine aminotransferase) & decreased in 2 patients AST(aspartate aminotransferase).
Conclusion Dengue is the one of the major public health problem in India. Higher number of cases is reported in the month of Oct and Nov owing to increase vector transmission ICT takes short time and where found to be helpful for early screening of dengue cases.
KEYWORDS: Ns1, IgG, IgM, LFT

INTRODUCTION-

Dengue virus (denv) the causative agent of most important Arthropod -borne disease is transmitted to humans by mosquitoes of Aedes family. {1} All four Dengue virus serotypes (DENV-1, DENV-2, DENV-3, &DENV-4) can cause the disease which can present as a mild-self-limiting illness.

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Dengue fever (DF) can also present as more severe from of the disease,like dengue hemorrhagic fevere (DHF) and dengue shock syndrome (DSS) {2}.The modified categorization by WHO in 2009 includes dengue with or without warning sign or severe {3} In spite of the recent categorization, the majority of the studies widely use the more popular DP,DHF & DSS classification for case definitions.

Dengue virus infection is a public health problem in tropical and subtropical regions of the word. In India, dengue is endemic in almost all states and is the leading cause of hospitalization {4}. The disease had predominant urban distribution a few decades earlier but is now also report from peri urban as well as rural areas {5,6}.Hepatic injury with dengue infection has been described since 1967.{7}.liver dysfunction varies from mild injury with elevation of transaminases to severe hepatocyte injury, resulting in jaundice hepatoxicity as deranged host immune response against the virus leading to hepatic dysfunction. The derangements in the transaminases are usually self- limiting and may serve as a predictor for assessing the disease severity {8}.The world health organization (WHO) estimates that approximately 50-100 million individuals are infection with dengue annually, and more than 2.5 billion individuals are likely to be at risk in more than 100 countries. This may be due to rapid unplanned urbanization and migration population from rural to urban areas. Lack of vector control and climatic changes. Poor sanitation facilities have contributed to fertile breeding areas for the dengue vector.

{9} Dengue is caused by four different serotypes of the dengue virus (called DENV 1, DENV 2, DENV 4), and infection can occur by one or more than one of the four serotypes. Infection with any one dengue serotypes provides lifelong homotypic different dengue virus.{10}. Dengue is typically diagoned by detection of detection of non – structural proteins-1 (NS1) antigen capture assays , datable up to nine days after symptoms onset on set of primary infection . But patients with secondary infections have NS-1 decetable for a much shorter period due to an amsnestic response. Serological diagnosis by immunoglobulin G or immunoglobin M antibody capture assay suffers from cross- reactivity with order flavivirus infection. Molecular methods, such as reverse transcription- Polymers Chain Reaction (RT-PCR) provides a same- day diagnosis of DENV during the acute phase of the disease (phase with viremia) and can also detect the serotype (even in patients with secondary infection).PCR- based technique are sensitive, specific, fast less complicated, and cheaper than virus isolation methods.

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AIM-

To study the seroprevalence of dengue virus and it's correlation with liver function test a tertiary care hospital Kanpur.

OBJECTIVE-

TIVE1. To screen the patient for dengue virus infection.

2. To detect the NS1 antigen by ICT and ELISA.

3. To detect the IgM and IgG Antibody by ICT and ELISA.

4. To measure liver enzyme by colorimetry method.

5. To study the demographic profile.

6. To study the prevalence of dengue virus infection.

MATERIAL AND METHOD:-

TYPE OF STUDY:

Cross sectional observation study

DURATION OF STUDY:

this study will be conducted from December 2023 to December 2024.

VENUE OF STUDY:-

Department of microbiology and department of biochemistry.

RESULT:-

Out of 60 patient 33 were male and 27 were female out of which 7 were positive only for NS1, 10 were positive for IgM and IgG,9were positive for NS1 and IgG and 2 were positive for NS1 IgG tested serologically positive for dengue . out of 28 positive patients LFT ranges were increased in 16 patients ALT (alanine aminotransferase) & decreased in 2 patient AST (aspartate aminotransferase).

Fig1: Rapld Card Show Reactive (NS1 Ag Positive) and non- reactive results

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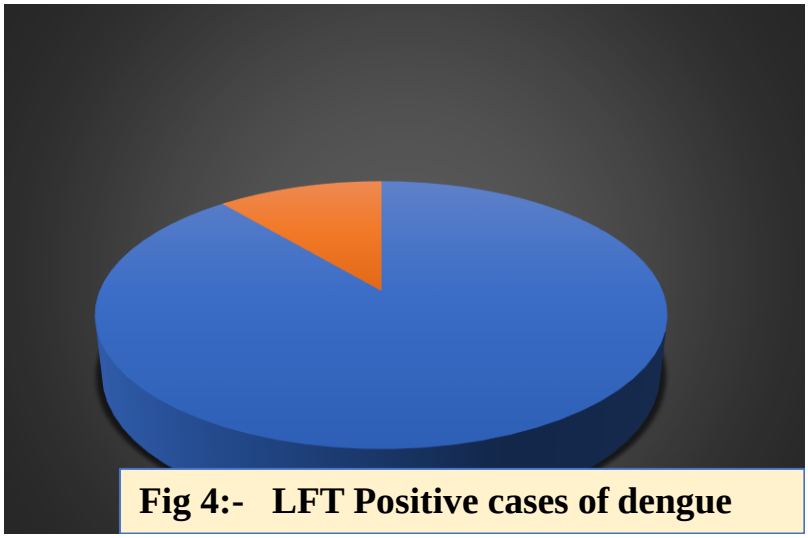
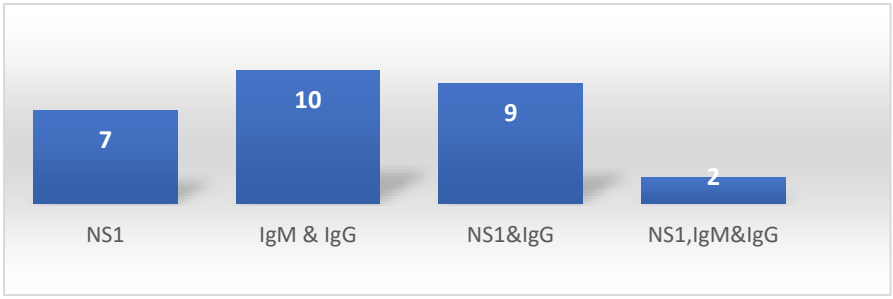


Fig 4:- LFT Positive cases of dengue



:- Total Positive cases of Dengue

Discussion-

In our study, found that the prevalence of patient with dengue without warning signs (46%) was higher followed by dengue with warning signs with warning signs (16%) and severe dengue (8%). Out of total patients diagnosed dengue NS1 positive (11%) were positive for IgM and IgG antibody (31%), were positive for NS1 and IgG (15%) ,and were positive for NS1 IgG IgM (3%) tested serologically positive for dengue out of (46%) positive patient LFT ranges were increase in (26%) patient ALT and decrease in (3%) patient AST. All of these patient with dengue fever were subjected to routine blood investigation for complete blood count and liver function test and dengue serology. Similar results were obtained in a study conducted by Samanta J et al among patients of dengue viral fever and found that effects of dengue virus infection associated with effects on liver function test and histopathological patterns are suggestive of councilman bodies, microvascular steatosis, and liver cell necrosis.

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CONCLUSION:-

Dengue is the one of the major public health problem in india. Higher number of cases is reported in the month of Oct and Nov owing to increase vector transmission ICT takes short time and where found to be helpful for early screening of dengue cases.

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