RESEARCH ARTICLE

CLINICAL MANIFESTATIONS AND LABORATORY PROFILE OF DENGUE FEVER CASES AT THE TIME OF PRESENTATION IN TERTIARY CARE HOSPITAL

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Manuscript Info   *Abstract*

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Dengue is the most common arboviral disease worldwide in tropical and subtropical regions. Clinical manifestations of dengue fever are mild illnesses like classical dengue fever and severe illnesses like dengue shock syndrome, and dengue hemorrhagic fever. The study was aimed to determine the clinical manifestations and laboratory parameters of patients with Dengue fever

Materials And Methods: This prospective study was conducted at a tertiary teaching hospital, Nellore over 6 months. All the patients above the age of 14 years who were diagnosed with Dengue with a positive result for NS1Ag or IgM or IgG antibodies were included. All the necessary clinical and laboratory investigation parameters of the patients were noted and the data was analyzed by frequency and percentage.

Results: During the study period, a total of 73 dengue cases were included in the study. Of these, there were 38 (52%) males and 33 (48%) females between 15 and 80 years of age. The most common clinical presentations were fever (100%), headache 56 (76.7%), myalgia 52 (71.2%), and nausea/vomiting 46 (63%). The common hematological findings were thrombocytopenia 58 (79.4%), followed by raised liver transaminases 42 (57.5%), leucopenia 37 (50.6%), leucocytosis 22 (30.1%) and raised hematocrit 21(28.7%)

Conclusion: Fever, headache, and anorexia are the most prevalent clinical manifestations of Dengue fever. Low platelet count, raised liver transaminases, and a rise in hematocrit are the most prevalent laboratory abnormalities. Early detection and monitoring of dengue cases can prevent the serious complications of dengue fever.

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Introduction:-

Dengue fever is a mosquito-borne tropical disease caused by the dengue virus. [1] Symptoms typically begin three to fourteen days after infection.[2] These may include a high fever, headache, vomiting, muscle and joint pains, and characteristic skin itching and skin rash.[1][2] Recovery generally takes two to seven days.[1] In a small proportion of cases, the disease develops into a more severe dengue hemorrhagic fever, resulting in bleeding, low levels of blood platelets, and blood plasma leakage, or into dengue shock syndrome, where dangerously low blood pressure occurs.[1][2]

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713

Dengue is spread by several species of female mosquitoes of the Aedes aegypti.[1][2] The virus has five serotypes;[3][4] infection with one type usually gives lifelong immunity to that type, but only short-term immunity to the others.[1] Subsequent infection with a different type increases the risk of severe complications.[1] several tests are available to confirm the diagnosis including detecting antibodies to the virus or its RNA.[2]

The detection of NS1 antigen and dengue-specific IgM/IgG has been the mainstay of Dengue infection diagnosis [5]. Management of a disease with complicated presentations is relatively simple, affordable, and very effective in saving lives as long as precise and timely therapies are implemented [6]

The present study aims to assess the clinical manifestations and laboratory parameters of all patients whose dengue infection was confirmed by a serological test, admitted to a tertiary care hospital in Nellore, Andhra Pradesh at the time of presentation, thereby increasing the screening sensitivity of healthcare professionals in the most severe cases of dengue infection

Materials And Methods:-
Source of data:
Patients admitted with dengue fever in ACSR government general hospital, Nellore from July 2022 to December 2022 were selected.

Study design:
Prospective study

Inclusion criteria:
Patients admitted with the clinical suspicion of dengue fever and with NS1 antigen and IgM antibody positive for DF

Exclusion Criteria:
Patients with fever-positive due to other infections.
Patients under the age of 14 years.

Study tools:
Data was collected in a structured performance, and all the relevant clinical and laboratory investigation details of the patients were collected. Thrombocytopenia was defined as platelet count less than 150000/mm3 of blood. Leucopenia was defined as a leukocyte count less than 4000/mm3 of blood. Leucocytosis was defined as a leucocyte count of more than 11000/mm3. Cases of dengue were classified as per the WHO classification of dengue [7]. After entering data in Microsoft Excel and importing it into Statistical Package for the Social Sciences (SPSS) 20, analysis was performed. Frequency and percentage were used in descriptive analysis. Data were represented by using Tables.

Results:-
During the study period, a total of 73 cases were presented with dengue fever. Of these 38 (52%) cases were males and the rest 33 (38%) were females and a maximum number of patients were in the age group of 21-40 years. Most cases occurred on September 21 (28.7%) followed by October 18 (24.6%) as shown in table 1

Table 1:- Demographic data of the study participants (n=73).

Variables		Number of participants (n)	Percentages (%)
Gender	MALES	38	52%
	FEMALES	33	48%
Age (in years)	<20	6	8.2%
	21-40	43	58.9%
	41-60	13	17.8%
	>60	12	16.4%
Month wise	July	6	8.2%
	August	12	16.4%
	September	21	28.7%
	October	18	24.6%

November	13	17.8%
December	3	4.1%

The commonest clinical feature was Fever in 73 (100%) patients, followed by headache 56 (76.7%), myalgia 52 (71.2%), and nausea/vomiting 46 (63%) as shown in Table 2.

Table 2:- Clinical characteristics of admitted cases (n=73).

CLINICAL FEATURE	Number of participants (n)	Percentage (%)
Fever	73	100%
myalgia	52	71.2%
Headache	56	76.7%
Nausea and vomiting	46	63%
Retroorbital pain	12	16.4%
Anorexia	28	38.3
Petechial Rash	5	6.8%
Backache	27	36.9%
Abdominal pain	15	20.5%
Conjunctival suffusion	11	15%
Cough	17	23.2%
Melena	19	26%
Menorrhagia	7	9.5%

The common hematological findings were thrombocytopenia 58 (79.4%), followed by raised liver transaminases 42 (57.5%), leucopenia 37 (50.6%), anemia 29 (39.7), leucocytosis 22 (30.1%) and raised hematocrit 21(28.7%)

Table 3:- Laboratory parameters of Dengue cases (n=73).

Lab parameter		Number of participants(n)	percentage
Hemoglobin (gm/dl) (Normal value= M: 13-16 F:12-15)	Males<13	10	13.6%
	Females <12	19	26%
Hematocrit (%) (Normal values=M:38-46 F:35-44)	Males >46	13	17.8%
	Females >44	8	10.9%
Platelet count (cells/cumm) (Normal value=1,50000-4,15,000/cumm)	<20000	6	8.2%
	20001- 40000	15	20.5%
	40001-60000	29	39.7%
	60001- 100000	6	8.2%
	100001 – 150000	2	2.7%
	>150000	15	20.5%
WBC count (cells/cumm) (Normal Value=4000-10,500/cumm)	<4000	37	50.6%
	4000-10500	18	24.6%
	>10500	22	30.1%
Serum bilirubin (normal value 0.1-1.2mg/dl)	>1.2mg/dl	9	12.3%
AST (normal value5-30 IU/LT)	<30	31	42.4%
	30-60	14	19.1%
	>60	28	38.3%
ALT (normal value5-30 IU/LT)	<30	36	49.3%
	30-60	16	21.9%
	>60	21	28.7%

Discussion:-

Dengue is an infectious disease with persistent occurrence in developing countries. The present study was conducted at the tertiary care centre of Nellore region, involving 73 cases. The Dengue fever cases were mostly encountered on September 21 (28.7%) followed by October 18 (24.6%). In the present study, 70% of dengue fever cases occur between September to November. This pattern of occurrence was observed in various studies [8][9][10].

Males were slightly more affected than females in our study. A high case positivity rate among male patients was reported in various studies from India [8], [11], [12]. Almost all age groups reported dengue-positive cases in this study. The majority of cases were reported in the productive age group of 20-40 years, including 58.9%. [11], [12], [13]

Clinical presentation:

The most common clinical presentations were fever (100%), headache 56 (76.7%), myalgia 52 (71.2%), and nausea/vomiting 46 (63%). In the study by Deshwal et al. [14], fever (100%) was followed by headache (94.75%), and myalgia (90.67%), and in the study by Vibha et al. [15], 95 (95%) of the patients had fever as a presenting symptom. Of some patients, 26 (35.5%) have bleeding manifestations like melena and menorrhagia. One patient presented with acute cerebellitis.

Laboratory profile:

The common hematological findings were thrombocytopenia 58 (79.4%). In Meena, et al. [16] study, (n=100), 90 (90%) cases had thrombocytopenia. Deshwal, et al. [14] observed thrombocytopenia in 69.5% of cases. Raised liver enzymes (AST & ALT) were observed in 42 (27.5%) patients. AST elevation is in more patients than ALT. Similar findings were observed in the Chung et al study [17]. In the present study, the total leucocyte count presented as leucopenia 37 (50.6%), and leucocytosis 22 (30.1%) out of 73 patients. In Meena, et al. [16] study, a total leukocyte count of less than 4,000cells/cumm was present in 51 (51%) patients. Elevated hematocrit 21(28.7%) was observed in our study. Deshwal, et al. [14] found that 20.7% of patients had elevated hematocrit of >47% at presentation. In 28 (28%) cases, > 40% hematocrit was noted by Vibha, et al. [15].

Conclusion:-

In this study, the most frequent clinical symptoms of dengue patients were fever, headache, and myalgia, and the most frequent laboratory findings were thrombocytopenia and leucopenia. These frequent clinical and laboratory characteristics of dengue viral infections should alert doctors about the possibility of dengue virus infections in the study area.

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