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Research Article

Dengue

The paradigmatic shift in the clinical profile of dengue patients: a prospective observational study from a tertiary care center in north India

Lal Banthia B.[1], Dubey P.[2*], Arya S.[3], Kumar Rao S.[4]

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[1] Bajrang Lal Banthia, Associate Professor, Department of Medicine, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.

[2*] Prashant Dubey, Assistant Professor, Department of Medicine, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.

[3] Siddharth Arya, Junior Resident, Department of Medicine, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.

[4] Sandeep Kumar Rao, Junior Resident, Department of Medicine, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.

Background: Dengue a vector-borne viral disease transmitted by mosquito and has several complications causing fatalities and a bad impact on society. The paucity of studies in Uttar Pradesh and lack of epidemiological data necessitated to take up this prospective study. **Purpose:** The study is aimed at detecting clinical signs and symptoms of patients with dengue fever presenting to TMU teaching hospital between January 2019 to December 2019. **Material and Methods:** A prospective observational study was undertaken in serologically confirmed cases of dengue. The disease was analyzed for its clinical profile, required investigations were done and evaluated. **Results:** In the present study the clinical outcome was: 1) Dengue fever without warning sign was (29.46%). 2) Dengue fever with a warning sign (57.87%). 3) Severe dengue fever (12.12%). Mortality noted in the present study was 1.8%. Bleeding manifestations were noted in 8.2% of patients. Thrombocytopenia (<100,000) was noted in (85.85%) patients. **Conclusions:** Patients of dengue presented with fever, headache, myalgia, nausea, vomiting. Bleeding manifestations were looked for. Lab findings like leucopenia and deranged liver function test were more than other studies.

Keywords: Dengue fever, Severe dengue, Clinical profile

Corresponding Author

Prashant Dubey, Assistant Professor, Department of Medicine, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh, India.
Email: drmed6264@gmail.com

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Introduction

Dengue is a mosquito-transmitted viral fever caused by the bite of infected mosquito Aedes aegyptii and Aedes albopictus.

It is classified as (1) Dengue with warning signs, (2) Dengue without warning signs, and (3) Dengue-severe dengue (WHO 2009) [1].

It has 4 serotypes DENV 1,2,3 and 4 [2]. Symptoms range in severity from mild fever, arthralgia, body ache, and malaise to severe forms like hemorrhagic fever (DHF) and dengue shock syndrome culminating into thrombocytopenia, fluid leaking into pleura, pericardium, and gut leading to hypovolemia, shock, multiorgan dysfunction and even death [3].

The global incidence of dengue has increased dramatically in the recent decade. About half of the world population is at risk. Around 310 million people are infected worldwide [4,5].

As per details of the national vector-borne disease control program under the government of India, the incidence of dengue was 136422 all over India with sizeable mortality.

Most of the deaths were due to negligence on part of the relative of dengue cases, lack of medical facilities, and delay in treatment [6].

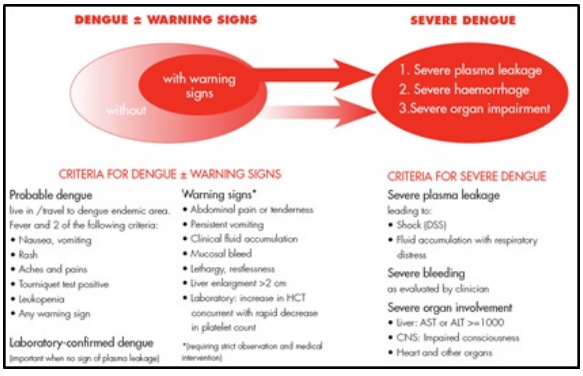

Fig-1: The 2009 revised dengue case classification [1].

Aims and objective

The present study is a prospective observational study undertaken to look into various presentations of the proved dengue cases of either gender coming to TMU, a tertiary care center in Moradabad (U.P) between January 2019 to December 2019.

Material and Methods

Setting: The study was conducted in Teerthanker Mahaveer Medical College Hospital, Moradabad.

Duration and type of study: It was a prospective observational study done between January 2019 to December 2019.

Sampling methods: All the patients presenting with signs and symptoms of Dengue fever meeting the inclusion criteria were included in the study.

Inclusion criteria

01. All cases of dengue fever proven by ELISA positive for IgM and NS1 or isolated IgM positive or IgM/IgG positive.
02. Age >18 years.

Exclusion Criteria

01. ELISA negative for IgM against dengue.
02. Patients with any other specific co-infection like malaria leptospira, enteric fever, and scrub typhus were excluded.

Data collection procedure: The data was collected using a predesigned questionnaire which included information like history of symptoms, findings on clinical examination, and the result of lab investigations. The patients were followed up to the discharge or end of hospitalization to ascertain the clinical outcome.

Ethical consideration and permission: The study was approved by the hospital ethics committee.

Statistical Analysis: The current study has analyzed 940 serologically proved dengue cases coming to TMU Moradabad between January 2019 to December 2019out of which 536 were males and 404 were females.

Tests to be conducted were-1-CBC 2-Dengue ELISA,3-PBF for MP, 4-LFT/KFT 5-viral markers 6-Blood sugar fasting, PP 7-USG of the whole abdomen 8-X Ray chest PA view 9- NCV in cases with peripheral neuropathy 10- Fundus examination and CSF study, CT/MRI of the brain for cases presenting with focal/diffuse neurological deficit/cranial nerve palsies were done.

Results

The most common symptom of dengue was fever (99.3%) followed by myalgia (91.2%), headache (58.5%), abdominal pain (42.2%), nausea,

Vomiting (35.6%), breathlessness and jaundice (Table 1).

Table-1: Clinical feature of the subject with dengue fever.

Clinical feature	No of Patients (%)
Fever	934 (99.3)
Headache	558 (58.5)
Myalgia	864 (91.9)
Retro Orbital Pain	90 (9.5)
Arthralgia	266 (28.2)
Rashes	102 (10.8)
Bleeding manifestation	78 (8.2)
Breathlessness	44 (4.6)
Abdominal pain	395 (42.2)
Jaundice	94 (10)
Nausea/ Vomiting	335 (35.6)

Table-2: Age and gender distribution.

Age	Male	Female
18-30	96	76
31-40	109	101
41-50	154	116
51-60	93	72
>60	84	39

Most of the patients affected were in the age group 40-50years in both genders. 536 males and 404 females in total were diagnosed with dengue (Table 2).

Table-3: Complication during the course of illness.

Shock	32
Bleeding	78
Renal Failure	24
Hepatitis	227
Pleural Effusion	103
Ascites	54
ARDS	28
ECG Changes	23
Neurological complication	13

Hepatitis was the most common complication noted among patients it was followed by pleural effusion and bleeding manifestations (Table 3).

Table 4: Lab Parameters.

Thrombocytopenia	<100,000	807
Thrombocytopenia	<50,000	443
Thrombocytopenia	<20,000	108
Leucopenia	<4000	632
Raised ALT/AST	334	
Raised PCV	76	
Raised BUN/ S. Creatinine	52	

Thrombocytopenia <100,000 was present in 807 (85.85%), <50,000 was in 443 (47.12%), <20,000 was in 108 (11.48%) patients, Leucopenia was found in 67.2% patient (Table 4).

Table-5: Ultrasonographic finding.

Hepatomegaly	376
Splenomegaly	162
Ascites	101
Pleural effusion	103
GB Edema	282

The most common USG abdomen findings were hepatomegaly in 40% followed by acalculous cholecystitis 30%, splenomegaly in 17.2%, and ascites in 14% (Table 5).

Table-6: Bleeding manifestations.

Melena	14
Cutaneous bleeding	6
Gum bleeding	9
Haematemesis	8
Haemoptysis	5
Haematuria	14
Bleeding PV	22

The bleeding manifestation was noted in 8.2% of the patients. The most common bleeding manifestations were in the form of bleeding per-vaginum followed by GI bleeding and few patients had melena and hematemesis (Table 6).

Discussion

The male to female ratio was1:0.75. Similar studies by Deshwal et al and Karoli et al also support our finding. [7,8] This finding is likely due to male persons working in fields without clothes.

On the contrary, the female is dressed fully in sarees and other clothes which prevents them from exposure to mosquitoes.

Majority of our patient 68.61% were in middle age group (31-60), only 13.08% patients were elderly which contradicts some of the earlier studies which associate increasing age with an incidence of dengue fever [7,8].

Fever was the presenting complaint in the majority of the patients (99.3%). Similar studies by Dash PK et al [9] had similar findings. These studies showed fever in all the patients but that was not seen in the present study.

Some patients presented with other complaints like myalgia, bleeding manifestation and were later diagnosed as dengue fever. Fever was followed by myalgia (91.9%), headache (58.8%), arthralgia (28.2%).

This was similar to other studies that of Dash PK et al and Divya P et al [9,10]. Bleeding manifestations were seen in 8.2% of patients. A similar finding was made by Neeraja M et al [11].

Abdominal pain was noted in 42.2% of the patients. This was much higher than in similar studies. Mishra AK at al noted abdominal pain in 14% of the patients in his study [12]. Nausea and vomiting were noted in 35.6% of patients in the present study.

This was higher than the study conducted by Mishra AK et al. They found it in only 14.5% of patients. In the present study, leucopenia was found in 67.2% of patients. This was similar to the study by Singh N et al who noted it in 68% of patients [13].

Bleeding manifestations were noted in 8.2% of patients. Thrombocytopenia (<100,000) was noted in 85.85% of patients. However, there was a poor correlation between thrombocytopenia and bleeding manifestations. A similar finding was noted by Ahmed M et al [14].

Raised ALT and AST were noted in 35.5% of the patients which was supported by a similar study conducted by Ooi et al [15].

In the present study, the clinical outcome of dengue fever without warning sign was 29.46%, dengue fever with warning sign 57.87%, severe dengue fever in 12.12%. Mortality noted in the present study was 1.8%. Mishra at el noted 3.12% cases of severe dengue fever. In the study done by Tewari K et al, classical dengue fever was seen in 85.8%, DSS in 11% DHF in 3.2% [16].

The cases of severe dengue were quite low in these studies than in the present study. The reasons for this increasing mortality in the present study were attributed to the fact that our institute is a tertiary care center and the current study only considered admitted patients in the present study.

Much confusion prevails regarding the original 1997 classification of dengue and the revised 2009 classification criteria for diagnosing dengue proposed by WHO because in 2009 classification both dengue hemorrhagic fever and dengue shock syndrome has been deleted and replaced by dengue Without warning signs, dengue with a warning sign and severe dengue. The present study has taken into account both the classification which has incorporated all the features of the patients [17-19].

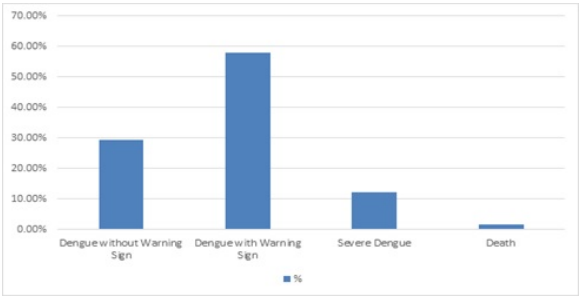

Fig-2: Clinical outcome of 940 subjects admitted with Dengue fever.

Conclusion

Most cases of dengue were mild and recovered completely without sequel or complications but a great deal of caution is required as there is a rapid rise in the number of severe dengue cases. Dengue presented with a wide array of manifestations including fever, myalgia, headache followed by nausea vomiting. A high index of suspicion is required when the patient presents with the above manifestation.

Early diagnosis and careful monitoring for warning signs like bleeding manifestations, multiorgan dysfunction are of utmost importance as proper management reduces morbidity and mortality.

What does the study add to the existing knowledge

All patients of dengue do not always present with fever. Low platelet count is not a mortality and morbidity predictor. The new classification of dengue is easy to use and covers most of the patients as compared to the previous classification.

Author's contribution

Dr. B. L. Banthia: Monitored the whole study, formulation of the paper, and proofreading.

Dr. Prashant Dubey: Data analysis, formulation of the tables.

Dr. Siddharth Arya and Dr. Sandeep Kumar Rao: Data Collection.

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