

STUDY OF CLINICAL PROFILE OF DENGUE FEVER WITH SPECIAL REFERENCE TO ACUTE COMPLICATIONSKeshava H. K¹, Chikkalingaiah², Guru Basava³, Channappa K. C⁴**HOW TO CITE THIS ARTICLE:**

Keshava H. K, Chikkalingaiah, Guru Basava, Channappa K. C. "Study of Clinical Profile of Dengue Fever with Special Reference to Acute Complications". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 09, March 3; Page: 2167-2178, DOI: 10.14260/jemds/2014/2122

ABSTRACT: Dengue is the arthropode borne viral infection transmitted by mosquitoes to humans.

AIM: To study the various clinical manifestations and acute complications of dengue fever.

METHODS: 100 cases of confirmed dengue infection admitted to KIMS, Bangalore between December 2009 and September 2011 were studied. A detailed clinical history and physical examination was done and baseline investigations were performed. The cases were followed-up daily for the clinical and laboratory parameters and were treated according to WHO guidelines. The data related to each of these cases was collected, compiled and analyzed. **RESULTS:** of the total 100 cases there were 61 male and 39 female. Age group of 21-30 (41) was most commonly affected Maximum number of patients was seen in the September, October, August, July. Commonest presentation was Fever (100%) followed by Headache (78%), Myalgia (70%), Arthralgia (66%), low back ache (60%). On examination patients found to have icterus (22%), bleeding spots (26%), rashes (50%), Splenomegaly (18%), Hepatomegaly (15%) and Ascites (9%), pleural effusion (16%), crepitations (7%). Platelet count was not very well correlated with the bleeding tendencies. Incidence of DHF was more with secondary Dengue infection than the primary dengue infection. The frequency of complications was high in the patients with secondary dengue infection than the primary infection. **CONCLUSION:** In our present study classical dengue fever was most common presentation followed by DHF and DSS. Hypotension, hemorrhagic spots, positive tourniquet test, jaundice, pleural effusion, ascites, neck stiffness are the common findings on examination associated with complicated forms of dengue. Bleeding, shock, hepatitis, polyserositis, meningitis, pneumonia are the complications seen in severe forms. On investigation Deranged liver function test, renal function test, secondary dengue infection, thickened gall bladder wall, hepatosplenomegaly on ultrasound abdomen, pleural effusion and bronchopneumonia on chest radiogram are associated with DHF and DSS.

INTRODUCTION: Dengue fever is an arthropod borne viral fever. It is acquiring epidemic proportion in this part of the world and it has become major public health problem with high mortality. Estimates suggest that 50 million cases of dengue infection and 500,000 cases of dengue hemorrhagic fever occur in Asian countries¹. It is vital to recognize at the earliest the signs and symptoms, alteration in biochemical parameters and multisystem involvement pattern in dengue to reduce the mortality.

In 1998 WHO reported, around 1.2 million cases of Dengue fever and DHF with 3,442 deaths. In 2001 alone, there were more than 609,000 reported cases of dengue in the Americas, of which 15,000 cases were DHF and incidence is increasing in 2001, Brazil reported over 390,000 cases including more than 670 cases of DHF.

About 2500 million people are now at risk from dengue. WHO currently estimates there may be 50 million cases of dengue infection every year, with 400,000 cases of DHF, out of whom more

ORIGINAL ARTICLE

than 90% are children below 15 years.^{2, 3} The disease has become a major cause of childhood mortality in many Asian countries. Not only is the number of cases increasing as the disease is spreading to new areas, but explosive outbreaks are occurring.⁴⁻⁶

There are about 500 000 cases of DHF require hospitalization each year^{5, 6}. At least 2.5% of cases die. With inadequate medical infrastructure in many developing countries the case fatality can reach upto 20% in these parts of world. But it can also be brought to as low as 1% with advanced treatment facilities.⁷

This study was undertaken to evaluate common modes of clinical presentation and complications of dengue in our hospital and correlate these features with lab findings which may help us in early diagnosis and better case management.

OBJECTIVES:

1. To study various clinical manifestations of Dengue fever.
2. To study various complications of Dengue fever including DHF and DSS.

MATERIALS AND METHODS:

Source of Data: All the adult patients with suspected Dengue Fever admitted to KIMS Hospital, Bangalore.

Method of collection of data: The data for this study was collected by patient evaluation which was done by detailed history taking, clinical examination and relevant investigations. Informed consent was taken from all subjects.

Sample size: 100.

Study design: A prospective clinical study.

Duration of study: 2 years.

Inclusion criteria: All the adult patients with Clinical features suggestive of Dengue infection, later on confirmed by serology were included in this study.

Exclusion criteria: Dengue fever with any other identified specific infection was excluded from the study.

METHODOLOGY: 100 patients, presented with clinical features such as fever, head ache, joint pain and bleeding manifestations admitted to KIMS Hospital, Bangalore, were later on confirmed with dengue rapid test were included in study. A detailed demographic data, clinical history, physical examination and relevant baseline investigations were undertaken. Patients with an identified bacterial focus or any other identified specific infection were excluded during the study.

For all cases, the rapid IgM- capture ELISA test, which has become the standard routine test for the serological diagnosis of dengue fever, was done.

Serum samples were obtained on an average of 5 to 7 days after DF symptoms had appeared the cases were followed-up daily for the clinical and laboratory parameters. The patients were treated with IV fluids, paracetamol, antacids, blood products and ionotropics as per WHO criteria for treatment of dengue.^{8,9} These cases were stratified based on the presence or absence of complications like shock and hemorrhage in to various dengue types. The frequency of various signs and symptoms and the values of laboratory tests were compared.

INVESTIGATIONS:

1. Complete hemogram.
2. Dengue rapid test.
3. Serum electrolytes, Urine routine, random blood sugar.
4. Malarial parasite (QBC), WIDAL.
5. Blood urea, Serum creatinine, Liver function tests, BT, CT.
6. Chikungunya IgM card test.
7. Chest X ray, Ultrasound abdomen, ECG,

Following investigations will be done whenever necessary.

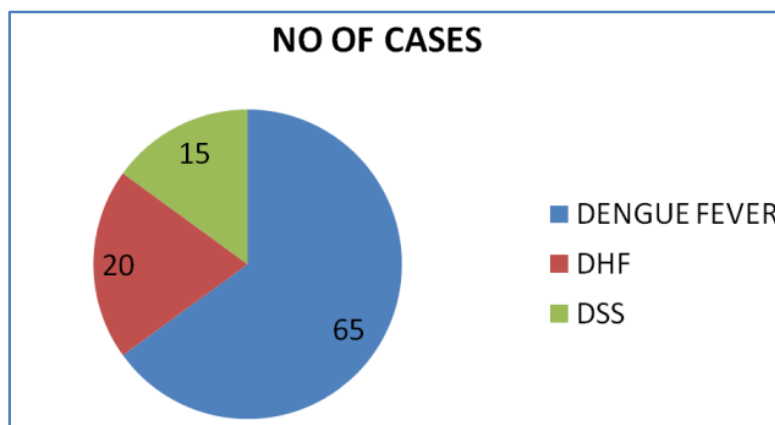
1. HBsAg, Anti HCV, Anti HAV.
2. Leptospira IgM Antibody.
3. CSF analysis.
4. CT brain, MRI brain.

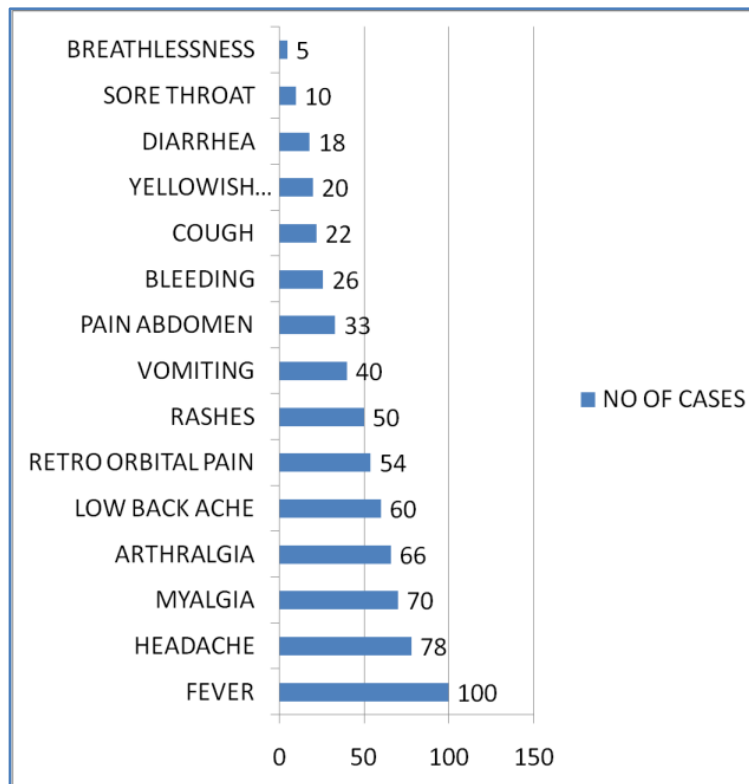
STATISTICAL ANALYSIS: The collective data as well as the proportions and percentages of variables are projected by appropriate charts, tables and graphs. As there is no comparative study involved, no significant statistical methods were applied.

RESULTS:

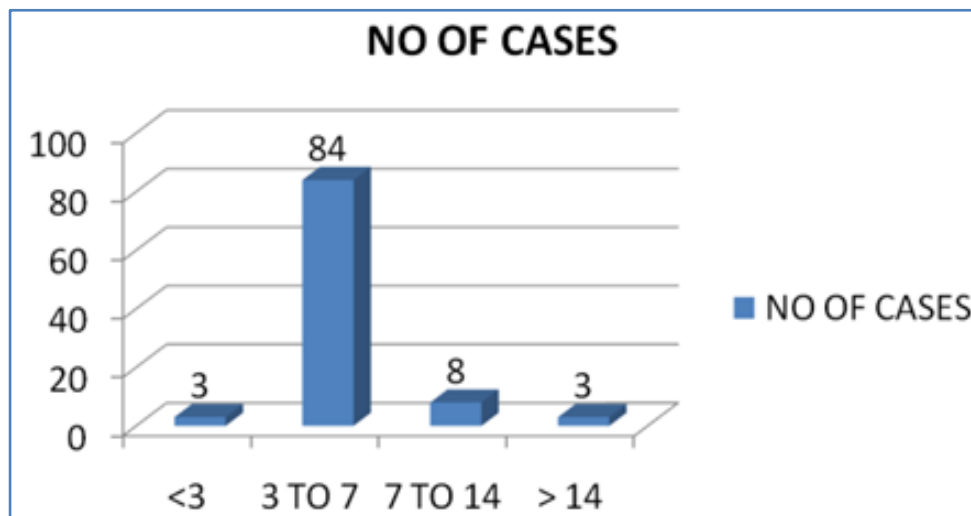
1. AGE DISTRIBUTION OF PATIENTS: In the present study highest number of cases was found in age group of 21 to 30 (41%), followed by in age group of 31 to 40.

2. SEASONAL DISTRIBUTION OF PATIENTS: Most of the cases were found in September (24), followed by august (22), October (16), July (13).

3. DIAGNOSIS:

4. CLINICAL FEATURES:

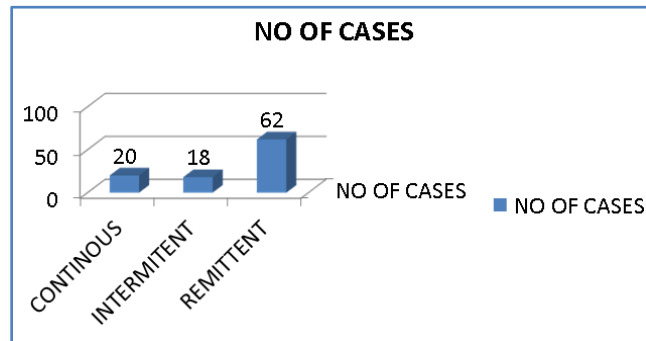
Most common presenting complaint was fever (100%), followed by headache (78%), myalgia (70%), and arthralgia (66%) and low backache (60%)

5. DURATION OF FEVER:

Most of the patients presented with fever of duration 3- 7 days (84%)

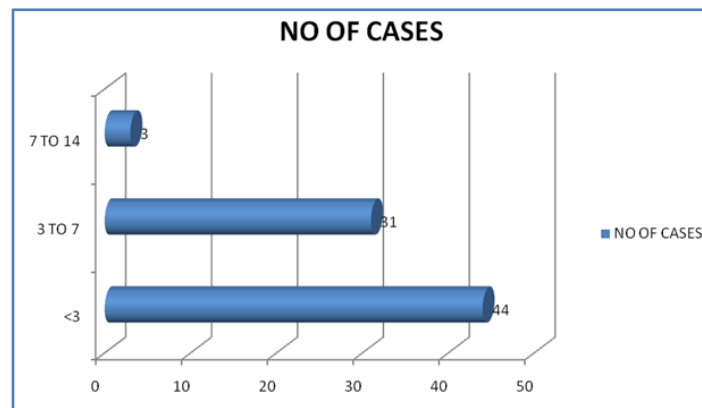
ORIGINAL ARTICLE

6. TYPE OF FEVER:



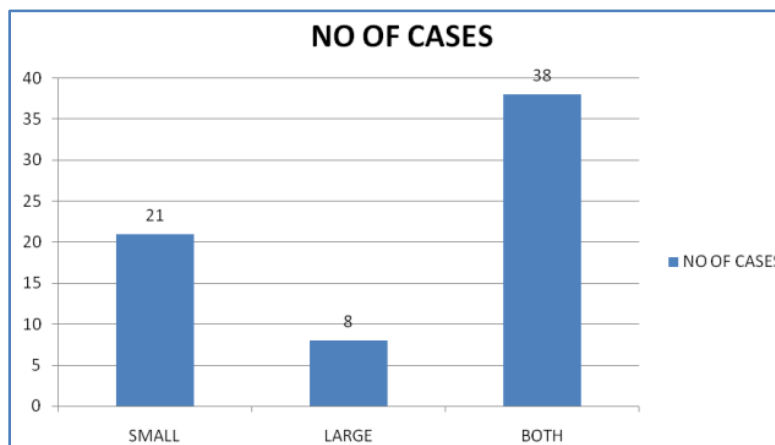
Majority of patients had remittent 62 (62%) type of fever, while 20 (20%) patients had continuous and 18(18%) had intermittent fever.

7. DURATION OF HEADACHE:



Of total 78 patients who presented with head ache, majority had headache of duration <3 days (44%), while 31(31%) patients presented with headache for 3-7 days.

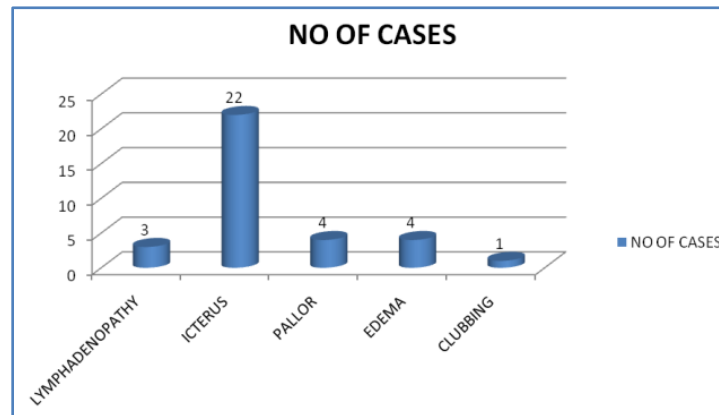
8. JOINTS INVOLVEMENT:



Both large and small joints were involved in 38(38%) patients, and 21 (21%) had involvement of small joints only.

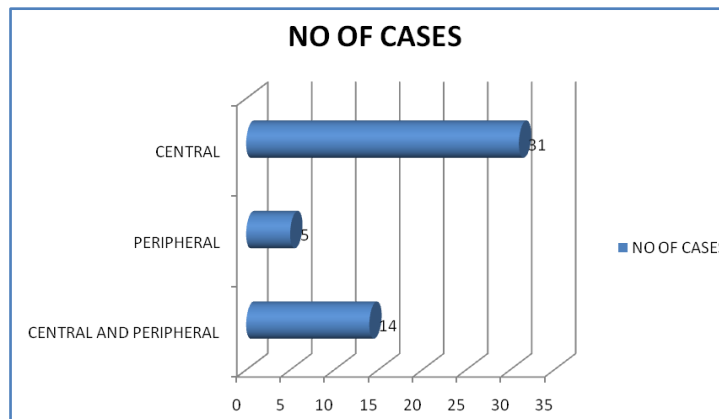
ORIGINAL ARTICLE

9. GENERAL PHYSICAL EXAMINATION:



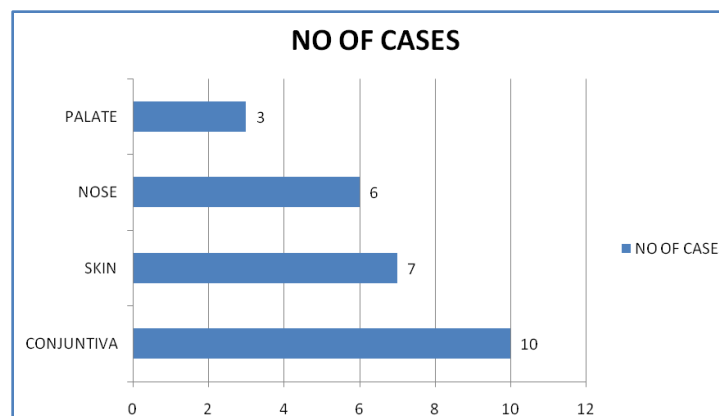
Icterus was present in 22 patients, pedal edema in 4 patients, and lymphadenopathy in 3 patients.

10. RASHES:



Of total 50(50%) patients who had skin rashes on examination, about 31 (31%) patients developed them on central part of body such as chest and abdomen

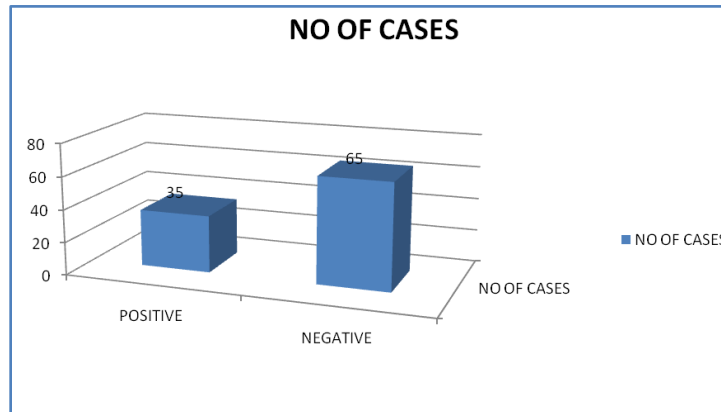
11. BLEEDING SITES:



Majority of patients had hemorrhagic spots over conjunctiva (10), followed by skin in 7(7%) patients.

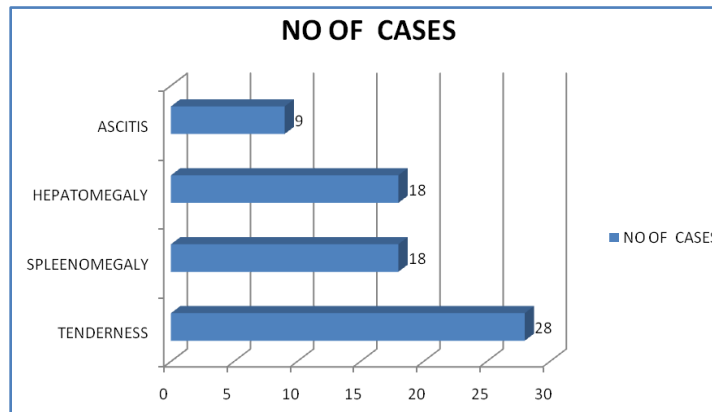
ORIGINAL ARTICLE

12. TORNIQUET TEST:



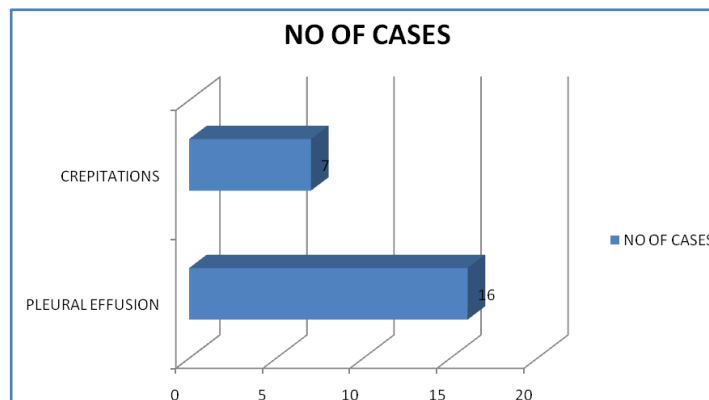
About 35 patients were tested positive with tourniquet test.

13. ABDOMINAL EXAMINATION:

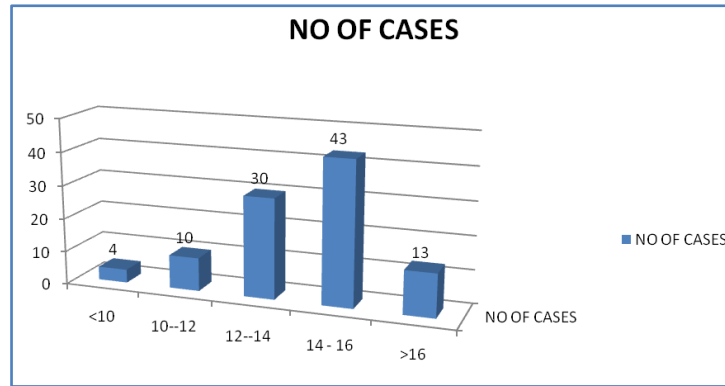


On abdominal examination, about 28 patients had tenderness on palpation, 18 patients had splenomegaly.

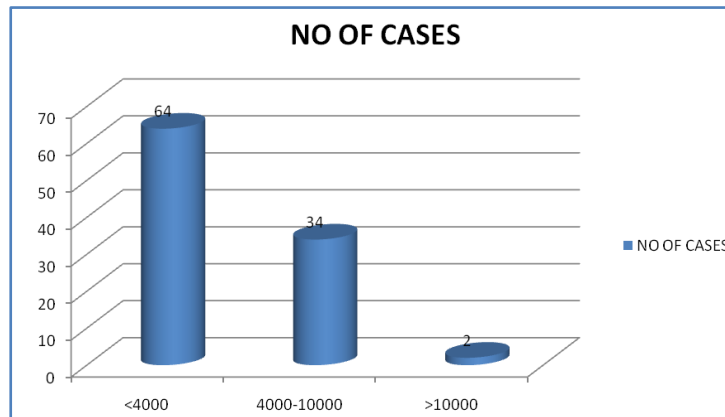
14. RESPIRATORY SYSTEM EXAMINATION:



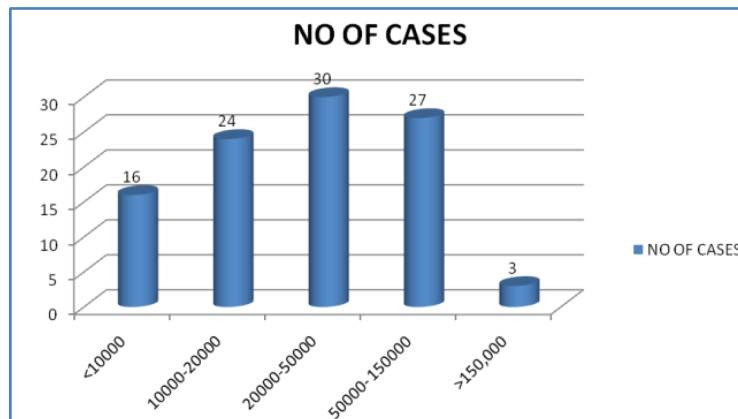
Respiratory system examination revealed pleural effusion in 16 patients and crepitations in 7 patients.

15. HEAMOGLOBIN:

Most of the patients were found to have hemoglobin concentration in the range of 14-16 gm/dl.

16. TOTAL LEUCOCYTE COUNT:

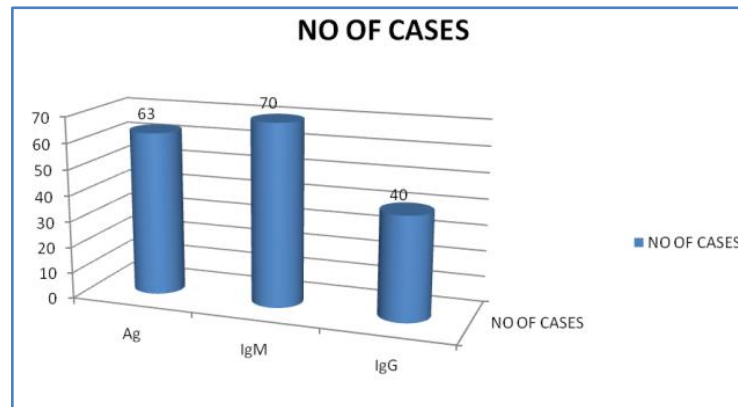
About 64 patients had TLC OF <4000/cu mm.

17. PLATELET COUNT:

About 16 patients had platelet count of less than 10000. Whereas most of the patients had platelet counts in the range of 20000-50000.

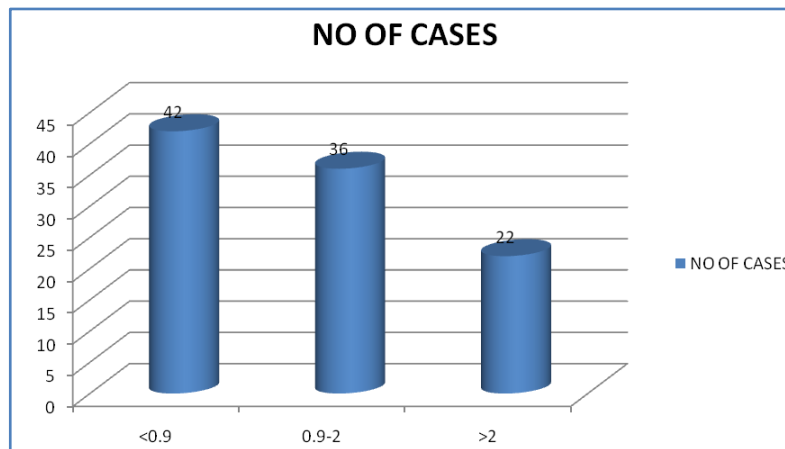
ORIGINAL ARTICLE

18. DENGUE SEROLOGY:



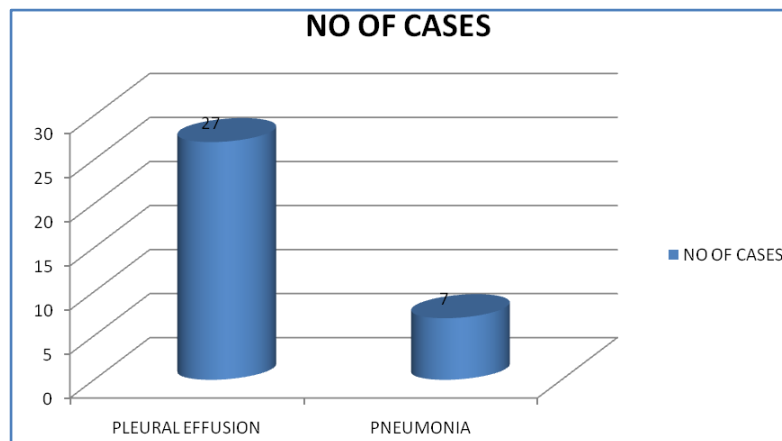
Of all the patients about 35 patients had both IgG and IgM positive on serological investigations.

19. SERUM BILIRUBIN:

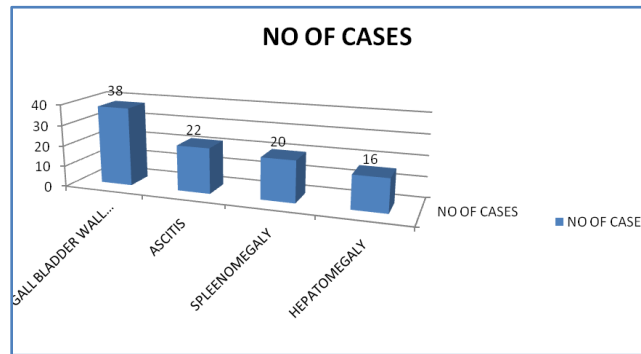


22 patients had total bilirubin >2 mg/dl.

20. CHEST X RAY:



About 27 patients had pleural effusion; it was bilateral in majority of cases, and pneumonia in 7 patients.

21. ULTRASOUND ABDOMEN:

About 38 patients had gall bladder wall thickening, 22 patients had ascites.

DISCUSSION: Our present study included 100 cases of serologically confirmed dengue fever who were admitted to KIMS Hospital and Research Centre, Bangalore, between December 2009 and September 2011. Mean age of the patients was 30 years. Maximum number of patients were in the age group of 21-30 years (41%) followed by in age group 31-40 year and minimum were in the age group of >50 years. Study included 61 (61%) males and 39 (39%) females. Most common presenting clinical feature was fever (100%) followed by headache (78%), myalgia (70%), arthralgia (66%), low back ache (60%) other presenting Features were retro orbital pain, rashes, vomiting, pain abdomen, bleeding. Similar results were observed in a study conducted by Agarwal A. Chandra where fever was found in 100%, myalgia in 79%, headache in 76% and arthralgia in 60%.

Most patients presented with fever of 3-7 days (84%), which is of moderate degree in 48 (48%) patients, and had a typical saddle back character in 62 (62%) patients.

Of all the patients presented with head ache 44 (44%) had it for duration of <3 days, which was of dull aching in 54 (54%) patients and was diffuse in distribution in about 48 (48%) patients.

The disease most commonly involved both small and large joints 38 (38%) patients, while it involved only 28 (28%) patients among our patients, 4% of the patients had pallor. Icterus was seen in 22% of patients, pedal edema in 4%, lymphadenopathy in 3% of the patients. Icterus was secondary to hepatic involvement. Pedal edema was the part of inflammatory process involved in pathogenesis of the disease. Cervical group of lymph nodes were involved in all our cases with lymphadenopathy.

Mean Pulse rate was 85bpm (SD-13.46). Hypotension was present in 15 (15%) of the patients. Mean respiratory rate was 16.7 cpm (SD-3.07) of the total 50 patients who had rashes over body. Most of the patients had rashes distributed centrally (31%) over chest and abdomen typical of viral fever rashes on examination about 26 patients found to have bleeding spots, most commonly distributed over palate (10%) and skin (7%), these are the patients who were classified as DHF. Tourniquet test was positive in 35 (35%) of the patients out of which 26 patients had spontaneous bleeding manifestations. A study conducted by G.N. Malavige et al in Sri Lanka, the test was positive in 33.7% of the patients.

Abdominal examination revealed Right hypochondriac tenderness in predominant (28%) cases in followed by, splenomegaly (18%), hepatomegaly (15%) and ascites (9%).

ORIGINAL ARTICLE

Respiratory system examination revealed evidence of pleural effusion in 16% of the patients out of which majority had bilateral pleural effusion and 7% of patients had crepitations on auscultation.

Cardiovascular system examination was normal. Central nervous system examination was normal except for neck stiffness in 1 patient.

Evidence of hemoconcentration as indicated by raised Hb% (>16gm %) and HCT (>45%) was seen in 13% and 23% of the patients respectively.

There was leucocytopenia (TLC<4000/cumm) in 64% of patients.

Mean platelet count was 39000/cmm. Platelet count at the time of admission was below 10000 in 16% of the patients and 10000-20000 in 24% of the patients. The bleeding manifestations were not very well correlated with the platelet count.

Most common LFT abnormality was raised liver enzymes SGOT and SGPT that was seen in 55% AND 46% respectively of the patients. TB was raised > 2mg/dl in 22 patients Elevated blood urea and serum creatinine were seen in 16% of the patients. Most of such cases suffered with dengue shock syndrome.

The most striking USG-Abdomen finding in our study population was GB wall thickening/edema that was seen in 42.50% of the patients. Splenomegaly, hepatomegaly and ascites were also seen.

65% of the patients are positive for IgM anti dengue antibodies, 40% had IgG positivity and 35% were positive for both IgM and IgG antibodies. These patients had severe forms of dengue such as DHF and DSS. Out of 100 cases of dengue, 65 cases (65%) were classified as DF, 20 cases (20%) as DHF and 15 cases (15%) as DSS.

SUMMARY: The present study was undertaken to study various clinical manifestations and acute complications, it involved prospective analysis of 100 cases of serologically confirmed cases of dengue fever including its complicated forms such as DSS and DHF who were admitted at KIMS Hospital Bangalore during the study period.

It was observed that the disease was common in age group of 21-30yr (41%); most of the patients were male (61%) and belonged to urban locality (54%). The disease was most prevalent in September, October, August, June, and July which corresponds to monsoon season. This is explained by favorable breeding environmental conditions for vector breeding.

The common presenting symptoms were fever (100%), headache (78%), arthralgia (66%), myalgia (70%), retro orbital pain (54%), and rashes (50%).

But few patients had unusual symptoms such as vomiting diarrhoea, cough, sore throat, breathlessness General physical examination revealed presence of jaundice (22cases), pedal edema (4cases), hypotension, tachycardia, rashes. Tourniquet test was positive in 35 cases.

On Systemic examination patients were found to have pleural effusion (16 cases), crepitation (7 cases), right hypochondriac tenderness (28 cases), hepatosplenomegaly (33 cases), and ascites (9 cases).

Mean platelet count was 39000 and platelet count did not correlate with severity of dengue fever.

Elevated liver enzymes and elevated serum creatinine was found in complicated forms of disease Out of total 100 cases studied 65 were classified as classical dengue fever, 20 as DHF and 15 as DSS.

BIBLIOGRAPHY:

1. Dengue: clinical and public health aspects-Transmission of Dengue virus by Aedes aegypti, Centre for disease control. 1.435-36.
2. Chandrakanta, Rashmi Kumar, Garima, Jyotsana Agarwal, Amita Jain, Rachna Nagar .Changing clinical manifestations of dengue infection in north India. Dengue bulletin 2008. 32, 118-126.
3. Janak Kishore, Jagdeep Singh, T.N. Dhole and A. Ayyagari. Clinical and Serological Study of First Large Epidemic of Dengue in and around Lucknow, India. Dengue bulletin 2006. 30, 72-80.
4. Dengue hemorrhagic fever: diagnosis, treatment, prevention and control. 2nd edition. Geneva: World Health Organization.
5. Duane J. Gubler, Gary G. Clark. Dengue and Dengue hemorrhagic fever: The emergence of a global health problem, EID.1995: 11:234-239.
6. World Health Organization, Dengue Hemorrhagic Fever: diagnosis, treatment and control. Geneva: WHO, 1986.
7. Communicable disease surveillance and response, WHO 2002. <http://www.who.int/entitl/tyl/csrl/disease/Dengue>.
8. World Health Organization. Monograph on Dengue and Dengue hemorrhagic fever: Geneva, 1993.
9. Clinical and laboratory guidelines for Dengue fever and Dengue hemorrhagic fever/Dengue shock syndrome for health care providers. CAREC, Pan American health organization, WHO.www.carec.org.

AUTHORS:

1. Keshava H. K.
2. Chikkalingaiah
3. Guru Basava
4. Channappa. K. C.

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of General Medicine, Kempegowda Institute of Medical Sciences, Bangalore.
2. Professor, Department of General Medicine, Kempegowda Institute of Medical Sciences, Bangalore.
3. Post Graduate, Department of General Medicine, Kempegowda Institute of Medical Sciences, Bangalore.

4. Professor, Department of General Medicine, Kempegowda Institute of Medical Sciences, Bangalore.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Keshava. H. K,
Assistant Professor,
Department of General Medicine,
Kempegowda Institute of Medical Sciences,
V. V. Puram, Bangalore – 40.
E-mail: drkeshavahk@gmail.com

Date of Submission: 05/02/2014.

Date of Peer Review: 06/02/2014.

Date of Acceptance: 14/02/2014.

Date of Publishing: 26/02/2014.