ORIGINAL ARTICLE

The Trends of Clinical Symptoms and Hematological Problem's of Patients with Dengue Fever in Tertiary Care Hospital in Year 2011

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ABSTRACT

Objectives: To determine the trends of clinical symptoms and hematological profile of dengue fever patients admitted in Tertiary Care Hospital.
Study design: Retrospective Observational Study
Setting: The study was done in department of Medicine of Sir Ganga Ram Hospital.
Timing: from 1-09- 2011 to 30-11-2011
Methods: This paper describes the trend of clinical manifestation and hematological findings of 453 hospitalized patients in Sir Ganga Ram hospital Lahore. Patients were divided into two groups on the basis of platelet level and liver function test level. The objective of categorization was to find out the trend of hematological characteristics of severe disease group from that of mild disease. This open label Retrospective observational study was carried out in department of medicine Sir Ganga Ram Hospital Lahore from 1st September 2011 to 30 November 2011. Analysis of frequency of symptoms and hematological profile was done in these patients to identify the labortary outcomes of these patients.
Results: Among 453 patients admitted in tertiary care hospital with fever and thrombocytopenia, 321 patients had dengue fever and 132 had DHF. All these were differentiated on the bases of Ultrasound of abdomen and Chest x-ray to look for signs of plasma leak. Among dengue fever patient's 283 patients had platelet less than 50000. Among DHF patients, 129 patients had platelets count less than 50000. Among 453 patients, 63 patients had IGM positive, 71 had IgM and IgG positive and 319 had IgG positive. It was also found that among 453 patients, 110 patients have liver function test disturbance 30 patients were dengue fever and 79 were dengue hemorrhagic fever among these 6 patients were having severe liver dysfunction (LFTS greater than Five times of normal).
Conclusion: It was found that severe thrombocytopenia was seen (platelet less than 50000) in dengue fever admitted in tertiary care hospital and this was unusual finding in dengue fever patients admitted in tertiary care hospital during admission. It was also proven severe liver dysfunction (LFTS greater than of five times of normal) was found in only dengue haemerrhegic fever.

Key words: Dengue fever, Thrombocytopenia, Hematological profile, Severe Liver dysfunction.

INTRODUCTION

Dengue fever is a most common Arbo virus illness which is transmitted by mosquito family (A.Eygypti, A. Albopictus, A. Polynesiensis and A. Scutellaris). Dengue fever virus (DENV) is an RNA virus of the family belonging to the genus Flavivirus. There are four strains of the virus, which are called serotypes and these are referred to as DENV-1, DENV-2, DENV-3 and DENV-4 [1].

Dengue virus infection is increasingly recognized as one of the world's emerging infectious diseases. About 50-100 million cases of dengue fever and 500,000 cases of Dengue Hemorrhagic Fever (DHF), resulting in around 24,000 deaths, are reported annually. The global incidence of dengue has grown dramatically in recent decades [1.]

The time between exposure to the virus and onset of clinical symptoms ranges from 3–14 days, but most often it is 4–7 days. When mosquito bites human it transmit DEN virus which produces interferons [2]The virus then binds to and enters white blood cells, and reproduces inside the cells while they move throughout the body. The virally infected WBCs respond by producing interferons, Interferon's are responsible for many of the symptoms, such as the fever, the flu-like symptoms and the severe pains. Interferons are involved in the activation of a number of defenses

against viral infection through the innate immune system.

These include: Augmenting the production of proteins through activation of JAK-STAT pathway, Activation of adaptive immune system, with production of antibodies against the virus, Activation of a number of defenses against viral infection through the innate immune system,Interferons are involved in the Results in Leucopenia and thrombocytopenia[9].

Dengue fever is also known as break bone fever[3]. Clinically significant Dengue infection may be: Simple dengue fever (DF) or Dengue hemorrhagic fever (DHF). The course of simple Dengue fever is generally uneventful and non-fatal. Differentiating DF from DHF is critical [5, 6]Because DHF can be life-threatening both the DF and DHF Can have bleeding tendencies therefore Bleeding is not the differentiating point between the two It has been suggested that DHF starts as DHF In other words simple dengue fever (DF) will not progress on to DHF . DHF is classically associated with Plasma leak into the 3rd compartment [6] and circulatory compromise Warning signs Low pulse pressure <20 mm, Low urine output, Delayed capillary filling. Warning signs (lab reports) are increasing hematocrit, Edema of the gall bladder, Ascites or pleural effusion, Low albumin, Low cholesterol, Tender hepatomegaly [5]

Clinical course can be divided into three stages Febrile Phase, Critical Phase, Recovery Phase

Febrile Phase

During this phase there is high fever, often over (104 °F), some Petechial hemorrhages [1], with generalized aches & pains and headache; this usually lasts two to seven days, People generally don't die during this stage

Critical Phase – Starts with the resolution of fever

Occurs in a few people, Lasts for just 24-48 hours or so Is associated with plasma leak – volume depletion & shock, this is the phase where management is critical

Recovery Phase

Volume gets resorted ,Volume over-load may occur, This is the phase where people die because of the problems faced during the critical stage, During the critical stage ,there is increased capillary permeability, As the fluid exudes out the circulatory volume collapses, Patient enter the state of SHOCK, sympathetic over activity-vasoconstriction, tachycardia ,Loss of volume reduces pulse pressure, Blood becomes thick due to loss of fluid – rising hematocrit and delayed capillary filling, Compromised renal and hepatic perfusion – reduced urine output and tender hepatomegaly People do not die of hemorrhage in DHF, They die either with shock and 2^0 organ failure, Or pulmonary edema and fluid over load during the recovery phase

Antibody test by Elisa and NS1 antigen test is used for diagnosis of Dengue virus. IgM antibody test become positive after 5 days of fever. IgM shows acute infection, IgG shows patient had history of dengue virus but know patient is immune[7, 8] .

MATERIALS AND METHODS

This paper describes the trend of clinical manifestation and hematological findings of453 hospitalized patients in Sir Ganga Ram hospital Lahore. Patients were divided into two groups on the basis of platelet level and liver function test level. The objective of categorization was to find out the trend of hematological characteristics of severe disease group from that of mild disease. This open label Retrospective observational study was carried out in department of medicine Sir Ganga Ram Hospital Lahore from 1st September 2011 to 30 November 2011.

Inclusion criteria: The patients who fulfill the following criteria were included n the study:

- High grade fever
- Bleeding manifestation
- Thrombocytopenia and Leukopenia
- Deranged Hepatic profile / Increased LFTs

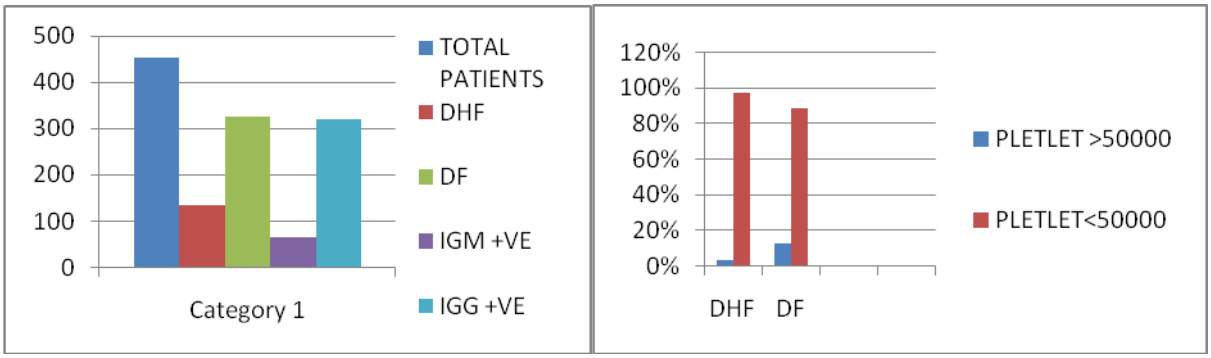
Exclusion criteria:

- Patients with symptoms of other causes of fever
- Patients with normal platelet counts
- Patients with normal LFTs

RESULTS

Among 453 patients who admitted in tertiary care hospital with fever and thrombocytopenia, it was turned out that 321 patients were dengue fever and 132 were of DHF. All these were differentiated on the bases of Ultrasound of abdomen and Chest x-ray to look for sign of plasma leak. Among dengue fever patients, 283 patients had platelet less than 50000, Among DHF patients, 129 patients had platelet count less than 50000. Among 453 patients, 63patients were IgM positive,

71 were IgM and IgG were positive and 319 were IgG positive. It was also found that among 453 patients, 110 patients have liver function test disturbance , 30 patients were dengue fever and 79 were dengue hemorrhagic fever among these 6 patients were having severe liver dysfunction (LFTS greater than five times normal).



DISCUSSION

Dengue has become a serious public health problem in last couple of years in Pakistan. In Year 2011, there was a biggest dengue epidemic in Lahore.

Pakistan first reported an epidemic of dengue fever in 1994. In Asian countries where DHF is endemic, the epidemics have become progressively larger in the last 15 years. In 2005, dengue is the most important mosquito-borne viral disease affecting humans [3].

Dengue virus is now endemic in Pakistan, circulating throughout the year with a peak incidence in the post monsoon period. Recent flood in Pakistan made the situation worse [4].

Only in Sir Ganga Ram Hospital, more than 107,242 thousand patients came to emergency with fever. Among them 453 patients were admitted in hospital with fever and thrombocytopenia. All patients who were admitted to hospital were suffering from typical features of Dengue Fever and dengue Hemorrhagic fever. The admitted patients were divided in two groups on the basis of signs of plasma leak by confirming them on USG of abdomen and CXR.

Patients were confirmed for Dengue virus by ordering Serological tests. It was found that most of the patient that came to hospital was having dengue fever second times. That's why this time the epidemic was more serious. All of the admitted patients have thrombocytopenia. All Dengue hemorrhagic patients have platelet count less than 50000. It was also seen than dengue fever patients can also have thrombocytopenia. But the patients that we see here have severe thrombocytopenia (less than 50000) in proven dengue fever patients which was unusual finding in dengue fever patients.

In our study it was found that severe liver dysfunction (AST / ALT is raised more than five times) in 5% Dengue Hemorrhagic patients. This is also a very rare finding seen in our patients.

CONCLUSION

In our study the patients who admitted in our tertiary care hospital had platelet count less than 50000 which was a significant finding as compared to other studies done before. It was also proven that severe liver dysfunction was only seen in dengue Hemorrhagic fever patients as compared to dengue fever patients.

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