Dengue Viral Fever - Clinical Manifestations and Investigation Findings

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ABSTRACT

Dengue estimate indicate 390 million dengue viral infections per year of which 96 million manifest clinically. About 3.9 billion people are at risk of infection with dengue viruses,70% of burden is shouldered by Asia. Dengue is a mosquito-borne tropical disease caused by the dengue virus,. virus belongs to family Flaviviridae. It has four serotypes. Dengue fever is transmitted by the bite of an Aedes mosquito infected with a dengue virus. . Illness range from mild asympatomatic to severe dengue haemorragic fever/dengue shock syndrome. In India, the first epidemic of dengue – like illness was recorded in Madras IN 1780 and the first virologically proved epidemic of dengue fever occurred in Calcutta. In estimated 400 million dengue infections occur worldwide each year, with about 96 million resulting in illness. Symptoms, which usually begin four to six days after infection and last for up to 10 days, Sometimes, symptoms are mild and can be mistaken for those of the flu or another viral infection. The symptoms may progress to massive bleeding, shock and death. People with weakened immune systems as well as those with a second or subsequent dengue infection are believed to be at greater risk for developing dengue hemorrhagic fever.

Keywords : Dengue, Aedes Mosquitoes, Flaviviridae

INTRODUCTION

In India, there has been a massive increase in dengue since 2001, with Tamil Nadu recording close to 4779 in 2019 with 4 deaths. According to WHO dengue fatality rate is 5% and severe cases like dengue hemorrhagic fever and dengue shock syndrome is about 44% . With early intervention dengue mortality is less than 1%.[3] Dengue is caused by virus of flaviviridae group and has 4 serotypes(DENV-1,DENV-2,DENV-3 and DENV-4).It is transmitted by female mosquito Aedes Aegyptii and to lesser extent by Ae albopictus. Dengue fever is a disease spread by the *Aedes aegypti* mosquito and is caused by one of four dengue viruses.[1] Once infected with one of the dengue viruses, develop immunity to that virus for the rest of your life. However, still be infected with the other three viruses. It is possible to get all four dengue viruses in lifetime. The viruses that cause dengue fever are related to those that cause yellow fever and West Nile virus infection. Symptoms usually begin about four to seven days after the initial infection. In many cases, symptoms will be mild. They may be mistaken for symptoms of the flu or another infection. Young children and people who have never experienced infection may have a milder illness than older children and adults. Symptoms include sudden high fever, severe headache, swollen lymph glands, severe joint and muscle pains ,skin rash, mild to severe nausea and vomiting, mild bleeding from the nose or gums, mild bruising on the skin and sometimes febrile fits.[2] Blood tests to check for viral antibodies or the presence of dengue infection. There is no medication or treatment specifically for dengue infection. A small percentage of individuals who have dengue fever can develop a more serious form of disease known as dengue hemorrhagic fever. The risk factors are having antibodies to dengue virus from a previous infection, being under the age of 12 and weakened immune system. The symptoms of dengue hemorrhagic fever can trigger dengue shock syndrome. Dengue shock syndrome is severe, and can lead to excessive bleeding and even death. The best method of protection is to avoid mosquito bites and to reduce the mosquito population.

MATERIALS AND METHOD

Symptoms of high grade fever, severe head ache, severe joint and muscle pains, few cases of skin rash were presented in DPS hospital(Dr.D.Panneer selvam), poonamallee, Chennai, India. Patients tested positive for malaria and enteric fever were excluded . Patients who tested positive for dengue NS1 antigen or positive IgM or IgG rapid serological test or Elisa which about 130 patients were further observed .They were followed up daily by clinical and laboratory parameters .blood test like total count, platelet count and liver function test were done along with chest X ray, ultrasound. Patients were treated with oral paracetamol, intravenous liquids and blood products according to WHO guidelines.

Chest x- ray most of the cases normal but few cases were pleural space fluid more than 100 ml showed as blunting of costophrenic angles. Massive effusion also seen in our series of cases. Bilateral pleural effusion also seen in our series of x-rays. Cardiomegaly probably due to pericardial effusion in severe cases noted.

Ultrasound findings are characteristic gall bladder wall thickening, pericholecystic fluid ,free fluid in Morrison`s pouch and pelvis. Few cases had right pleural effusion. In severe cases bilateral pleural effusion, ascitis and pericardial effusion. In more severe cases ,in addition to above findings patchy hyperechoic areas in liver, pancreas and spleen indicating haemorrhages in the abdominal organs due to decrease in platelet counts.

RESULTS AND DISCUSSION

The majority of cases were admitted in rainy season between July and November with peak season being September. The least admission was seen in summer season in May. Fever or high grade fever was present in all 130 cases. Myalgia and abdominal pain were common in almost all cases. Hepatomegaly was the common physical finding. Petechiae was common bleeding manifestation in severe cases. About 8 patients had epistaxis whereas four cases had bleeding gum. Sixty-five patients had normal leukocyte count while fourth eight had Leucopenia. Among liver enzymes SGOT were elevated in one twenty patients. Parameters like prothrombin time and activated partial thromboplastin time were abnormal in 98 cases. Thrombocytopenia were seen in all severe dengue cases. The test for ELISA showed that IgM antibodies were detected in 88%patients. Platelet count to dengue virus antibody found few had less than 50000/mm count whereas majority had between 50000-100000/mm count. IgM was positive for all NS1 positive patients within 4 days of fever [4]. Serum IgG were estimated in children with history of 7 days or more .X ray showed right pleural effusion in twelve cases, Eight cases had bilateral pleural effusion, ascitis and pericardial effusion. Ultrasound findings are characteristic of gall bladder thickening, pericholecystic fluid and free fluid in Morrison`s pouch and pelvis[7]. In addition to above patchy hyperechoic areas in liver, pancreas and spleen indicating hemorrhages in the abdominal organs due to decrease in platelet count.

DISCUSSION:

An early and accurate laboratory diagnosis of dengue infection is of paramount importance in the management of the disease. High grade fever, myalgia, major joint pain, hepatomegaly were presenting feature in our 130 cases of dengue positive cases. Among clinical findings hypotension, pleural effusion and respiratory distress were seen. Few Bleeding is multifactorial. Various factors other than thrombocytopenia causes bleeding in dengue and they are decreased in platelet function, fibrinogen consumption, prolongation of PT/PTT TIME and vasculopathy. leucopenia was common along with other studies. SGOT was elevated more than

SGPT due to involvement of myocytes. Multi-disciplinary studies confirmed that race, young age, virus strain and high body-mass index correlate well with increased burden of dengue infection. Severe dengue, there will be plasma leakage, haemorrhage and organ impairment. Leukopenia is observed near the end of the febrile phase of illness. Lymphocytosis, with atypical lymphocytes, usually develops before effervescence or shock. Patients with dengue have significantly lower total white blood cell and platelet counts than patients with other febrile illnesses in dengue-endemic populations.

In our study, GB wall thickening was the most common finding (83.3%), followed by pleural effusion (59.8%), and ascites (53.9%). Furthermore, GB wall thickening, ascites, and pleural effusion were more common in patients with platelet count less 80,000. Thus, severity of the disease, which is usually assessed by clinical features and platelet count, can also be assessed by sonography[5]. DF is typically a self-limiting illness. Blood parameters like reduced platelet count, leuopenia, lymphocytosis also helped us to point out dengue. Flu like syndrome illnesses with rash and diarroheal diseases illnesses neurological manifestations, these conditions that mimic the febrile phase of dengue infections.

CONCLUSION:

Dengue fever represents a real economic burden especially in affected countries. High prevalence of dengue. Dengue disease has no borders and prevention; eradication and control of this disease requires worldwide efforts. More research is required to recognize what societal and individual level factors were involved in raising such a remarkable increase in quantity of dengue research in the last decade. Future directions to combat this dreadful disease aim at methods of mosquito control, development of vaccine, and antiviral drug regimen.

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