Case Report on Dengue Induced Myocarditis

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Abstract

Background: Due to the wide range of clinical symptoms, myocarditis is a difficult diagnosis. Myocarditis can range from mild to severe, resulting in congestive heart failure, arrhythmias, cardiogenic shock, and death. It predicts morbidity and mortality in dengue-infected patients. Case presentation: we presented a 12-year-old child who came to the pediatric department brought by mother with a chief complaint of high grade Fever insidious onset since 5 days, Episodes of vomiting non projectile, non-foul smelling contain food particles since 5 days and pain in abdomen more in right hypochondrial region, non-radiating. He has no previous history of hospitalization. During a physical examination Head to toe examination reveals few abnormalities; the kid is slim and skinny, with a dreary appearance. He is frail and uncooperative. Though it found that he develop acute myocarditis and the patient treated with antibiotic, antacid, antipyretic, antidiuretic as well as antiemetic. Conclusion: Dengue-induced myocarditis is a serious condition. Through direct virus activity on cardiomyocytes, dengue virus can induce unusual symptoms such as acute myocarditis, cardiogenic shock, and death. Physicians caring for dengue patients should be aware of this potential result. Elevated cTn-I predicts length of stay and in-hospital death in dengue-infected patients. Diabetes, hypertension, low blood bicarbonate, high serum creatinine, and any echocardiographic abnormalities were all linked to poor outcomes in dengue-infected people.

Keywords: Dengue fever, dengue-myocarditis, heart failure, arrhythmias.

INTRODUCTION

Dengue fever (DF) is an endemic disease in India that causes dengue fever, dengue haemorrhagic fever (DHF), and dengue shock syndrome (DSS). In DHF and DSS, hypotension is prevalent due to intravascular depletion caused by capillary leak. However, myocardial dysfunction is found in DHF/DSS and may be the cause of hypotension and shock(1). Cardiac involvement is known to occur in the form of reduced left ventricular function and arrhythmias. However, isolated myocarditis caused by dengue virus is uncommon. We present the case of a 12-year-old kid who had viral myocarditis as a result of dengue infection and recovered completely after three months.(2)

An important public health issue, dengue is a virus that infects humans and is spread by arthropods that live in tropical and subtropical climates. Dengue-1, -2, -3, and -4 virus serotypes spread dengue viruses by the bite of the Aedes aegypti mosquito. Because the disease has recently geographically extended to many previously untouched locales and has become more accessible due to global travel, physicians in temperate zones are more likely to see returning travellers with dengue infection.(3)

Asymptomatic infections; undifferentiated fever; dengue fever (fever, headache, retroorbital discomfort, myalgia, and arthralgia); and dengue haemorrhagic fever/dengue shock syndrome (haemoconcentration, thrombocytopenia, and a proclivity to haemorrhage). (4) Atypical symptoms, on the other hand, such as liver, central nervous system, and cardiac involvement, are becoming more common. We present an unusual and rare case of dengue infection characterised by a violent and fatal cardiogenic shock caused by acute myocarditis(5). Histopathological analysis of heart tissue revealed several multifocal areas of muscle necrosis and intense interstitial oedema, which were associated with clusters of virus particles inside the cardiomyocytes and in the interstitial space, indicating that dengue virus may have a direct effect on the myocardium.(6)
CASE PRESENTATION

A 12 years old was brought by his parents to the pediatric unit after suffering from high grade fever since five days. Episodes of vomiting non projectiles, non-foul smelling contain food particles since five days and pain in abdomen more in right hypochondriac region, non-radiating.

As narrated by parents he was alright before 2 weeks after that he started show symptoms of high grade fever upto 102 f for 5 days which was continue along with non projectile vomiting and pain in abdominal hypochondriac region for that he was treated in local clinic with some antibiotic and antipyretic medication. Although he did not get relief so he was shifted to tertiary hospital for further management.

As per his parents he does not have any kind of medical history and on the physical examination he had a body tempature of 102 f. he also had a lean and thin and having dull look. He is weak and not so cooperative.

On laboratory examination, platelet count was decreased to 24000cumm, white blood cell count was increased 18700cumm, and his RBC count was 2.3 million/cumm as well as MCH:-24 , MCHC:-39.8, Albumin count was decreased to 1.8, fibrinogen is 1.5. After undergone through test for dengue i.e. NS1 he was diagnosed as dengue and in 2D ECHO nondilated, poorly contracting left ventricle was found. The pattern of a normal-sized or mildly dilated left ventricle with a low ejection fraction seems to be unusual in dilated cardiomyopathy.

The patient was treated with Inj. Cefriaxone 750 mg BD, Inj pan40 mg OD, Injmirinone 1.4 mg BD, Inj. Emset 4 mg SOS and Inj Lasix 5mg BD . Also provide appropriate treatment for high grade fever i.e. Neomol and the child shows great improvement.

On the 7th day of hospitalization, the childs vitals are stable. Medical management continued and patient prognosis was good and advised the patient for regular 15 follow up.

DISCUSSION

Dengue fever, a global public health risk, is responsible for a large number of deaths. Dengue-endemic areas are home to more than 40% of the world's population, and the World Health Organization estimates that 100 nations and over 2.5 billion people are at risk of contracting the disease each year. Dengue fever is a self-limiting illness that normally lasts 5-7 days in infected individuals. However, approximately 500,000 people have a severe variation, which causes in 20,000 deaths each year. As a result, approximately 0.5% of dengue patients develop a severe illness requiring specialised care. According to a Sri Lankan study, 25% of dengue patients exhibited elevated levels of one or more myocardial damage markers, such as myoglobin, CK-MB, troponin T, N-terminal type B peptide, and/or heart-type fatty acid. In a trial of 102 children with DHF, ten had acute myocarditis and required inotropic medications, and one died. According to a Sri Lankan study, 25% of dengue patients exhibited elevated levels of one or more myocardial damage markers, such as myoglobin, CK-MB, troponin T, N-terminal type B peptide, and/or heart-type fatty acid. In a trial of 102 children with DHF, ten had acute myocarditis and required inotropic medications, and one died. (9)Wali et al. investigated 17 DHF/DSS patients using radionuclide ventriculography and discovered that seven of them had an ejection fraction below 40%, 12 had global hipokinesia, and all abnormalities had recovered to normal after three weeks of follow-up. Weerakoon et al. performed autopsies on five dengue-related deaths and discovered histological evidence of myocarditis.

Dengue viruses have been associated to heart illness, with symptoms ranging from minor biomarker increases to myocarditis, pericarditis, and death. Previously thought to be highly unusual, cardiac problems in dengue fever are gradually becoming increasingly common. Myocarditis is the most prevalent cardiac symptom of Dengue infection. Through thorough examination employing sensitive and specific biomarkers associated with imaging modalities, cardiac involvement in dengue fever should be included in the dengue fever management strategy. With a 95% positive predictive value, cardiac magnetic resonance imaging (CMR) is the gold standard for diagnosing myocarditis and pericarditis. Patients should be assessed with echocardiography, which detects functional abnormalities and pericardial effusion in the absence of a CMR facility.

CONCLUSION

Dengue fever cardiac consequences are still underdiagnosed in clinical settings and contribute considerably to fatality rates. Early identification and quick resuscitation can be aided by proper cardiac complication knowledge and awareness. More
research is needed to determine the hemodynamic relevance of myocardial involvement in severe dengue infection, as well as the relationship between serotypes, anti-genicity, and cardiac involvement.

REFERENCES

