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A case of cerebral malaria and dengue concurrent infection

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KEYWORDS

Cerebral malaria
Dengue
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ABSTRACT

Cerebral malaria and dengue are the common infections which cause higher mortality and morbidities in every part of the world especially in India. Concurrent infection of cerebral malaria and dengue is rare entity due to different habitat of vectors and it was reported rarely from Southeast Asia. In this case report, the authors reported a case of concurrent cerebral malaria and dengue which was recovered after eight days of admission with increase in morbidity.

1. Introduction

Malaria and dengue cause significant mortality and morbidity in India and both diseases are endemic in our country. Concurrent infection of dengue and cerebral malaria was rarely reported due to different habitats of vectors *i.e.* of Anopheles and Aedes. In this letter author has reported a case of concurrent cerebral malaria and dengue infection.

2. Case report

A 42-year-old non-diabetic and non-hypertensive army personnel with no addiction, presented to our emergency with complaint of high grade fever which was intermittent in nature with mild chills and rigor and profound generalized weakness since last three days. He also developed altered behavior followed by altered sensorium since last one day. On examination pallor icterus cyanosis lymphadenopathy was absent, vitals were stable, chest cardiovascular and per abdominal examination was normal. There was no sign of bleeding from anywhere. On neurological examination, he was drowsy not following verbal commands and he was opening eyes on deep painful stimuli. Pupil was bilaterally normal and it's size was reacting to light. Fundoscopy was normal. There was no facial asymmetry. Other cranial nerve examination was normal.

On motor examination, bulk tone was normal and he was moving all limb equally and symmetrically. All DTR were present. There was no meningeal sign.

Initial laboratory values were TLC 5800 DLC P80 L15M02E03. RBC count was 3.45 million Hb 10.6 gm% PCV 30.3 MCV 87.8 MCH 30.9 MCHC 35.2 and his lowest platelet count was 26000 LFT, KFT and serum electrolyte were normal, PT with INR was raised (T 21 C 13 INR 1.61). Kit test for falciparum malaria was positive and *Plasmodium falciparum* was seen on peripheral smear and it was also found that NS 1 for dengue was positive but the IgM and IgG was negative by kit test. So based on clinical and laboratory findings, the diagnosis of

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severe falciparum malaria and dengue was kept and ant malarial, intravenous fluids was given and drugs which causes thrombocytopenia was avoided. Platelet was transfused. On the day of admission, he developed one episode of generalized tonic clonic seizure for which he was loaded with phenytoin sodium and seizure did not recurred. After that, although he was restless after episode, his sensorium was better next day as he was only confused but following the command. His CSF examination and head CT scan was normal. After that he gradually improved and the lab parameters were also better, he was discharged after 8 d of admission when the last platelet was 1.32 lacks. IgM and IgG for dengue was repeated by ELISA method and it came to be positive (IgM=1.89 and IgG=1.11 laboratory cut off <0.9 negative and >1.1 positive).

3. Discussion

On reviewing literatures, there are only few studies done on concurrent of malaria and dengue infection in recent years and few reports from Southeast Asia and India[1-7]. In concurrent cerebral malaria and dengue infection both malaria and dengue infection exists in a patient at the same time. Specific rate of concurrent infection of malaria and dengue from overall febrile patient is 0.99% as reported by Crame *et al.* Concurrent infection is rare due to each infection has different mosquito vector, with different habitat, dengue mosquito vector has main habitat in cities whereas malaria has its habitat in forests and probable immunity to each infection in the endemic area is also preventing the concurrent infection[2,5,6]. Although there were no initial reports on the modification of nature of morbidity and mortality in con current infection, a retrospective study of 104 patients in French Guiana by Epelboin *et al.* reported that concurrent infection is more severe than single infection[7]. They found that there is a greater risk of developing deep thrombocytopenia and anemia. Wiwanitkit also suggested that in concurrent infection thrombocytopenia, hemoconcentration and atypical lymphocytosis with more bleeding is common[8]. In my patient, there was anemia and thrombocytopenia (Hb 10.4 gm% and 26 000), Despite low platelet, there is no evidence of bleeding from anywhere (external or internal). His platelet count was gradually improved and he was discharged with platelet count 1.34 lacks. This study and previous study suggested increased severity of the simultaneous infection compared to the isolated infection in terms of hematological consequences and these studies suggested to further research on biological influence of dengue virus on endothelium[9].

This case report and previous related studies suggested that in endemic areas possibilities of concurrent infections should be thought and despite similarities in clinical and biological characteristics of both diseases, all treating clinicians should order investigation for both diagnoses.

Conflict of interest statement

We declare that we have no conflict of interest.

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