ELEVATION OF LIVER ENZYMES IN DENGUE AND MALARIAL THROMBOCYTOPENIC PATIENTS

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ABSTRACT

Objective: To determine the frequency of liver enzymes elevation in dengue and malarial thrombocytopenic patients.

Patients and Methods: This cross sectional descriptive study was conducted from August 2013 to December 2013 at Fatimiyyah hospital Karachi Pakistan. All patients aged between 15 and 60 years presenting with high grade fever and low platelet count for > 03 days duration on complete blood picture (CP) were included in this study and then underwent for further investigations of Liver function test, malaria parasite / ICT and dengue fever serology. The data was collected on pre-designed proforma and analysis was done using SPSS 17 version.

Results: The main finding was mild to moderate hepatic impairment, assessed by serial measurements of liver enzyme levels was apparent in almost all dengue and malarial patients although the most abnormalities were noted later than during the generally critical period. Total 78 patients were identified as dengue fever and 10 patients were diagnosed as malaria while two patients had both dengue and malaria infection simultaneously. The mean ± SD for platelets count, SGPT, SGOT and ALP was 65.4 ± 39.7 and 50.10 ± 27.61 (p=0.2), 120.19 ± 154.33 and 214.70 ± 86.01 (p=0.6) in dengue and malarial thrombocytopenic individuals. Conclusion: In patients with dengue the liver function tests especially SGOT and SGPT (AST and ALT) were significantly deranged than malarial population. On the basis of these parameters it was observed that liver function profile is the best tool to assess the severity and spread of the dengue infection.

KEYWORDS: Malaria, dengue, thrombocytopenia, liver function test and platelets.

INTRODUCTION

Dengue fever (break bone fever) is an acute hemorrhagic viral illness transmitted through by Aedes Egypti[1,2]. It is the second most common arthropod borne infection after malaria and the fatal complications are dengue hemorrhagic fever and dengue septic shock.[3,5] The clinical presentation include fever, retro bulbar headache, body rashes myalgias, nausea and vomiting while the diagnostic criteria includes thrombocytopenia and hemoconcentration.[6,7] The multisystem involvement is reported in dengue since past few years includes cardiovascular and central nervous system manifestations and hepatic involvement.[8] In many dengue endemic areas, acute hepatitis observed to be a common complication and elevated hepatic enzymes including SGPT and SGOT are being investigated to be used as diagnostic criteria, although liver involvement prolongs the course of disease but does not alter the prognosis.[9,10]

The rationale of conducting this study is to determine the disturbance in SGPT and SGOT in thrombocytopenic patients which may guide to an early assessment for spread of dengue and malarial infection and lead to an adequate and appropriate treatment at an early stage that will reduce the risk of complication and benefit the patients as far as management is concerned.

PATIENTS AND METHODS

This cross sectional descriptive study was conducted from August 2013 to December 2013 at Fatimiyyah hospital Karachi Pakistan. All patients aged between 15 and 60 years presenting with high grade fever and low
platelet count for > 03 days duration on complete blood picture (CP) were included in this study while the patients with a history of previous liver disease, any other infectious disease, connective tissue or blood diseases, thrombotic thrombocytopenic purpura (TTP), hemolytic uremic syndrome (HUS), patients were on aspirin, steroids and immunosuppressive therapy, disseminated intravascular coagulation (DIC) and non cooperative patients were excluded from the study. After meeting the inclusion criteria and the informed consent was taken from every patient and then underwent for further investigations of Liver function test, malaria parasite / ICT and dengue fever serology by taking 2cc venous blood sample in a disposable syringe, transferred to CP bottle and sent to laboratory for analysis. The data was collected on pre-designed proforma and all the maneuvers were performed under medical ethics. The data evaluation was done using SPSS 17 version, the frequencies, percentages and mean ±SD for calculated for the study variables. The non parametric statistical Wilcoxon signed-rank test was applied and the p-value ≤0.05 was considered as statistical significant.

RESULTS
This study observed the biochemical manifestations of dengue and malaria and the main finding was mild to moderate hepatic impairment, assessed by serial measurements of liver enzyme levels was apparent in almost all dengue and malaria patients although the most abnormalities were noted later than during the generally critical period. Total 78 patients were identified as dengue fever and 10 patients were diagnosed as malaria while two patients has both dengue and malaria infection simultaneously which had presented with thrombocytopenia and fever.

| TABLE 1: MEAN AGE IN RELATION TO DISEASE AND GENDER |
|---------------------------------|-----------------|-----------------|-----------------|
| Variables                       | Dengue (n=78)   | Malaria (n=10)  | Both (n=2)      |
| Male (n=)                       | 57              | 4               | 2               |
| Female (n=)                     | 21              | 6               | 0               |
| Mean age (Years)                | 30.67           | 30.60           | 20.50           |
| IgG (+ ve)                      | 75              | 0               | 2               |
| IgM (+ ve)                      | 64              | 0               | 1               |
The present series was also observed the liver involvement. Liver impairment commonly seen in severe P. falciparum malaria and it has been demonstrated that abnormal liver function profile return to normal a few weeks after antimalarial treatment. The observed increase in liver enzymes (AST and ALT) could be due to leakage from hepatic necrosis by the auto immune progress and/or by abnormal cell activation induced by the parasites. Regarding the thrombocytopenic target population of present study, the mild thrombocytopenia is a common feature of acute malaria regardless of the severity of infection. The profound thrombocytopenia is a well recognized complication of falciparum malaria but less likely observed in vivax infections. In a study conducted by Jadhav et al. only 1.5% of cases of vivax malaria had platelet counts ranging from 5,000 - 20,000/µl without any bleeding manifestations. Makkar et al. reported a case of P. vivax presenting with bleeding gums and a platelet count of 8,000/µl. According to former literature, lowest ever platelet count reported in P. vivax was 5,000/µl. In current series, the liver enzymes were deranged in 65 patients of dengue fever and in 7 subjects with malaria infection. The observation of this hepatic enzyme impairment in dengue and malarial infection were also reported by former studies. In present study the dengue serology method by ELISA was used for detecting the dengue infection and malaria parasite (MP) / ICT was used to identify the malaria infection, it is consistent with the study by Moody A and Harani MS, et al. Therefore these findings can help us in early awareness for spread of the infection and timely and effective management of fatal but curable diseases (dengue and malaria). Thus, liver enzymes should always be advised in patients presenting with high grade fever and low platelet count and if disturbed should initiate treatment immediately to save the patients acquire various life threatening complications associated with dengue and malaria infection.

### REFERENCES


