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CLINICAL PRESENTATION OF DENGUE IN COVID ERA

General Medicine

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ABSTRACT

Dengue incidence been increasing in this decade but in the last year the care for dengue is changed because of COVID pandemic. Aim of this study to analyze the presentation of dengue in this pandemic. Design of this study is Cross sectional, we retrospectively collected data of dengue positive patients in a single UPHC and analyzed. This study involved 42 patients. The diagnosis was done mainly based on NS 1 Ag positivity. 65% had thrombocytopenia but only 19% needed platelet transfusion. There is an elevation of SGPT & SGOT. As per prognosis 39 patients improved and 3 of the patients were shifted to tertiary centre

KEYWORDS

Introduction

Dengue is a mosquito-borne viral disease caused by a virus of the Flaviviridae family and there are four distinct, but closely related, serotypes of the virus that cause dengue (DENV-1, DENV-2, DENV-3 and DENV-4)(1). Dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti and, to a lesser extent, Ae. albopictus. One modelling estimate indicates 390 million dengue virus infections per year (95% credible interval 284–528 million), of which 96 million (67–136 million) manifest clinically (with any severity of disease)(2). Another study on the prevalence of dengue estimates that 3.9 billion people are at risk of infection with dengue viruses. Despite a risk of infection existing in 129 countries(3), 70% of the actual burden is in Asia(2). The Americas, South-East Asia and Western Pacific regions are the most seriously affected, with Asia representing ~70% of the global burden of disease. In 2021 Tamilnadu as recorded 4014 cases with inhospitalisation of 511 cases(4). However, the data is not yet complete and COVID-19 pandemic might have also hampered case reporting in several countries. Dengue causes a wide spectrum of disease. This can range from subclinical disease (people may not know they are even infected) to severe flu-like symptoms in those infected. Although less common, some people develop severe dengue, which can be any number of complications associated with severe bleeding, organ impairment and/or plasma leakage. Severe dengue has a higher risk of death when not managed appropriately. But there is a lack of data showing whether there is an change in dengue presentation after COVID 19 emergence so this study aims at understanding clinical and laboratory presentation of dengue after COVID 19 impact in urban health care centre in South India.

Methodology:

This is a single-centred, Observational Cross sectional study conducted in an Urban Primary health care centre in South Indian population. The study population involves patients who have been Dengue positive comes to PHC between the period of April 2021 to March 2022 for a period of 1 year. The data was collected and analysis was done retrospectively. The central tendency used for Lab parameters are Mean(Standard deviation).The statistical analysis was done using SAS.

Results:

Demographic analysis:

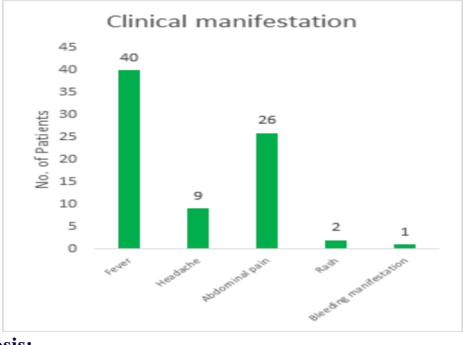
The study included total of 42 patients and the mean age was 20.5years which included 19 paediatric patients. 13.9% of patients had comorbidities including Diabetes, S.Hypertension, PCOD, Hypothyroidism (Table 1).

Demographic (Table 1)	
Mean age	20.5 years
	n(%)
Male	18(41.8)
Female	25(38.2)
Pediatric patients	19(44.2)
Smoker/Alcoholic	1(2)
Comorbidities	6(13.9)
DM & HTN	3
Unknown DM	1
PCOD	1
Hypothyroidism	1

Clinical manifestation:

The commonest symptom is fever 95.2% of patients. Warning sign of abdominal pain occurred in 61.9 % and Bleeding in a patient (Table 2).

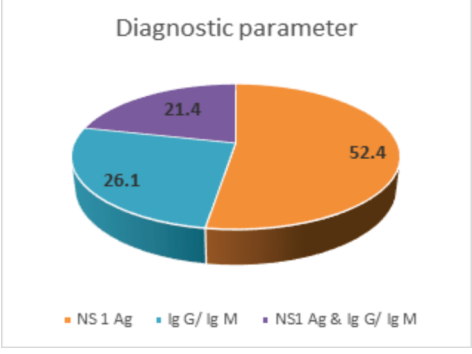
Clinical manifestation (Table 2)	
Symptoms	n(%)
Fever	40(95.2)
Headache	9(21.4)
Abdominal pain	26(61.9)
Rash	2(4.7)
Bleeding manifestation	1(2.3)



Diagnosis:

Diagnosis was done either NS 1 Ag or IgG or Ig M positive. Based on the result (Table 3) most of the patients were NS 1 Ag positive.

Diagnosis (Table 3)	
Test Positive	n(%)
Antigen +	22(52.4)
Antibody +	11(26.1)
Antigen & Antibody +	9(21.4)



Lab Parameters:
Interestingly in this study the mean level of SGOT and SGPT is high. The other main parameter in platelet level which have an mean of 89,000/µl, out of 42 patients 27 have low level of platelet(<1.5L/ µl) and 1 patient have severe thrombocytopenia (<10k/µl).(Table 4)

Lab profile	Mean(S.D)
Hb	13.08(1.48)
PCV	40.24(4.51)

Radiological findings:
USG abdomen was done to patients in which spleen abnormal is found in 35% and liver abnormal in 33% of patients.(Table 5)

USG abdomen (Table 5)	
Findings	n(%)
Liver abnormal	14(33.3)
Gall bladder abnormal	9(21.4)
Spleen abnormal	15(35.7)
Ascites	11(26.1)

Prognosis:
Platelet transfusion was done in 8 patients. 39 of 42 patients condition improved and 3 patient was shifted to tertiary health care centre.

DISCUSSION:
The COVID-19 pandemic in dengue-endemic regions is cause for much concern because both dengue fever and COVID-19 are difficult to distinguish as they share similar clinical and laboratory features (5,6). Although the entry routes of the SARS-CoV-2 and the dengue virus (DENV) are different, both infections result in a systemic infection, with some similar clinical presentations such as fever, headache, myalgia and gastrointestinal symptoms. However, while dengue is usually associated with a tendency to bleed, development of micro and macrothrombi is a hallmark of severe COVID-19 (7). As shown in previous studies in this study also Dengue patients shown significant symptoms like Fever in 95%, Abdominal pain in 62%, Headache in 21 % of patients. The extremely high levels of blood ALT were also indicative since liver injury is common in dengue due to a specific attack on the hepatic tissues by the DENV(8), it is seen in this study that SGPT & SGOT is elevated. Another finding is thrombocytopenia because of platelet activation, which causes attachment to the vascular wall forming thrombi and removal from circulation, immune cytotoxic effects through opsonization of platelets and direct infection of platelets, and megakaryocytes by the virus(9). In this study 64% had thrombocytopenia and 1 patient had severe thrombocytopenia. Even though thrombocytopenia not all patients required platelet transfusion(10), in this study only 8 patients had platelet transfusion. As per prognosis 39 patients improved and 3 of the patients were shifted to tertiary centre. There should be a future studies on dengue-COVID Coinfection patient to further analyse the patients profile.

CONCLUSION:
This study was done to analyse any change in clinical manifestation during COVID pandemic. This is a cross sectional study involving 42 patients. The diagnosis was done mainly based on NS 1 Ag positivity. 65% had thrombocytopenia but only 19% needed platelet transfusion. There is an elevation of SGPT & SGOT. As per prognosis 39 patients improved and 3 of the patients were shifted to tertiary centre.

Ethical consideration:
Standard of care is given to all patients.

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