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Short Communication

Thrombocytopenia as Diagnostic and Prognostic Biomarker for Severity of Dengue Fever

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DESCRIPTION

Dengue is the quickest spreading arboviral infectious illness in the entire world it causes morbidity and mortality in the majority of tropical and subtropical regions [1]. It is wide spread by mosquitoes of the species Aedes and comes in four different serotypes i.e., Dengue Virus-1 (DENV-1), DENV-2, DENV-3, and DENV-4. According to the 2013 Global Burden of Dengue research, there are 60 million symptomatic dengue infections each year, which cause about 10,000 fatalities [2]. Dengue Fever (DF) was considered as one of the top ten global health threats, according to the World Health Organization (WHO). Dengue Fever (DF) is a public health problem in various nations that are tropical or subtropical [3].

Dengue Fever is ranging from self-limiting acute (mild) febrile illness to more severe and potentially fatal illness [4]. The dynamic course of dengue is closely related to the viremic phase followed by the host's immune response [5]. The disease's severity is influenced by a number of risk factors, including age, pre-existing conditions, the infectious serotype, and secondary infections. A different serotype of infection results in a more severe form of the illness than the initial infection [6].

Typically, incubation lasts between 3 to 14 days. A worse prognosis is frequently the consequence of a secondary infection with a different serotype. The febrile, critical, and recovery periods of an infection occurs in three stages. The febrile period lasts 3 to 7 days after infection. Myalgias, nauseous, diarrhoeal, constipated, abdominal discomfort, lymphadenopathy, hepatomegaly, maculopapular rash, leukopenia, and thrombocytopenia can also be present. Patients with secondary infections and other comorbidities are more likely to experience the critical phase of infection, which can be observed following defervescence. With the resolution and stabilization of vitals, the recovery phase begins. Anti-dengue Immunoglobulin M (IgM) serology is used to make the diagnosis, and supportive treatment is given [7].

Symptoms of severe sickness include hemodynamic unsettling influences, expanded vascular porousness, hypovolemia, hypotension, and shock. Thrombocytopenia is a major characteristic observed in both mild and severe dengue disease and is significantly correlated with the progression of dengue severity [1].

Dengue fever-related thrombocytopenia can be caused by a variety of mechanisms, such as bone marrow suppression [8], platelet consumption during active coagulopathy, peripheral platelet destruction due to increased apoptosis or increased sequestration in the liver and spleen despite hypercellularity of the bone marrow [2], complement system lysis [9], and antiplatelet antibody involvement [10]. One of the standards used by the World Health Organization recommendations as a possible indicator for clinical severity is thrombocytopenia. It is a low platelet count of less than 150,000 per microliter of blood or a rapid decline in platelet count [4].

According to the previous studies, the platelet count in Dengue fever decreased significantly from the third day of illness to the seventh day of illness and returned to normal levels on the eighth or ninth day of the illness [1,11].

CONCLUSION

In conclusion, the thrombocytopenia is currently the most common biomarker measured during dengue infection that signals the transition from the viraemic phase to the immune phase of the disease usually observed between day 3 and day 7 after the onset of illness. Based on the platelet count, the physician or Health care provider should consider the occurrence of Dengue fever. Thereby appropriate treatment should be provided to prevent further progression of acute phase of infection to critical phase.

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