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Research Paper

ROLE OF LOW DOSE HYDROCORTISONE IN THE MANAGEMENT OF VIRAL THROMBOCYTOPENIA

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Thrombocytopenia is very common presentation of acute febrile illness. Mostly they are viral in etiology like dengue fever. The white blood cells respond by producing a number of signaling proteins, such as cytokines and interferon's, which are responsible for many of the symptoms, such as the fever, the flu-like symptoms and the severe pains. In severe infection, the virus production inside the body is greatly increased, and many more organs (such as the liver and the bone marrow) can be affected. Fluid from the bloodstream leaks through the wall of small blood vessels into body cavities due to capillary permeability. As a result, less blood circulates in the blood vessels, and the blood pressure becomes so low that it cannot supply sufficient blood to vital organs. Furthermore, dysfunction of the bone marrow due to infection of the stromal cells and peripheral destruction of platelets in spleen leads to reduced numbers of platelets, which are necessary for effective blood clotting; this increases the risk of bleeding, the other major complication of dengue fever. The use of low dose corticosteroids helps in stopping the ongoing immune destruction of platelets and hence avoiding platelet transfusion and its associated complications and overall its cost effectiveness in the management of viral thrombocytopenia in Indian scenario.

Keywords: Hydrocortisone, Immune destruction, Improvement, Coagulopathy, MODs

INTRODUCTION

Dengue is the most common vector-borne viral infection of humans, with around 50 million infections estimated to occur annually and some 2.5 billion people living in areas of risk . A broad spectrum of disease manifestations is seen, ranging from asymptomatic infection to a systemic plasma leakage syndrome typically accompanied by thrombocytopenia and coagulation derangements. Severe plasma leakage may progress to life-threatening Dengue Shock Syndrome (DSS).

METHODS

We undertook a retrospective study at the Princess Esra Hospital, in the department of medicine, DCMS, Hyderabad, India in January 2014. Patients with thrombocytopenia (platelet

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Figure 1: Vector for Dengue Infection

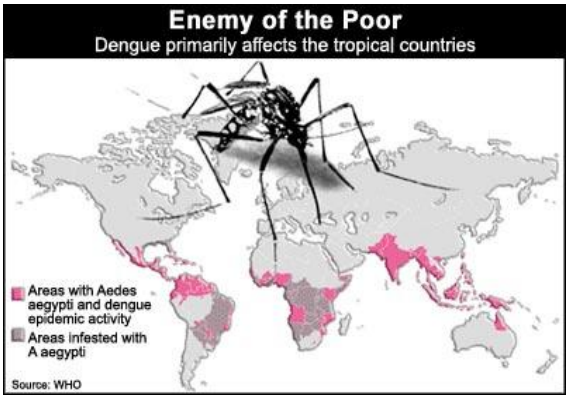
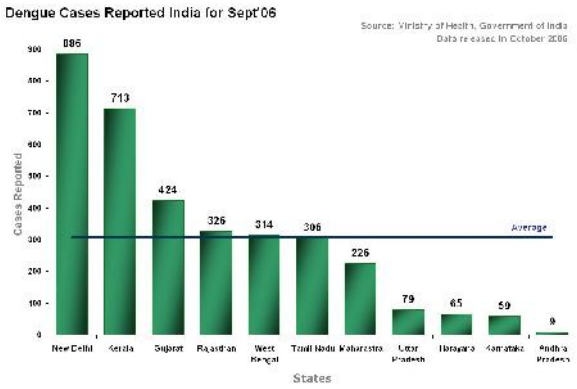


Figure 2: Prevalence of Dengue in India



count <50×10^9/l) were given above treatment. The patients received an initial intravenous dose of 100 mg hydrocortisone, followed by 50 mg doses every 8 h for 24 -48 h, along with other supportive care. The primary outcome was the degree of mean platelet count rise.

THE INCLUSION CRITERIA

1. Short duration of history of fever (3-4 days) with low back and retro orbital pain with or without rash.
2. Laboratory Values Complete Haemogram and peripheral smear (Leucopenia and thrombocytopenia with reactive lymphocytosis. CRP Levels – Normal range Complete Urine Examination (Active Urine Sediment) Dengue NS1 antigen test

EXCLUSION CRITERIA

1. Ruling out other common causes of fever like Malaria, Enteric fever, etc.
2. High CRP Levels

RESULTS

The 50 patients of our study, satisfying the inclusion criteria were given routine treatment with Intravenous Hydrocortisone as mentioned above for 48-72 h and later after platelets reaching around 75000 were put on oral steroids for 5 days in addition. The baseline data and other variables (headaches, nausea, rash, temperature, pulse, blood pressure, haematocrit, white cell count and haemoglobin) were observed every day. The duration required for the platelets to improve, the failure rate of steroid therapy in improving platelet counts, the number of complications like bleeding, DIC, etc., and mortality was studied. Temperature, pulse and blood pressure was stabilized in 24-48 h of treatment in all patients. All patients were symptomatically better in the same period of time. The platelets started improving after 10-12 h of initiating steroids with gradual increments of 8,000-10,000 daily and reaching to level of 75,000 in 3 day's duration in 46 of the patients. 3 of the patients required 4 days of intravenous steroids to reach 75,000 levels. One patient showed drop till 2300 without bleeding manifestations after initiating steroids but on 2nd day showed gradual improvement and reaching 75,000 in 5 days of intravenous steroids. All patients later followed in OPD showed level of more than 100,000. None of the patients had any bleeding complications or went into coagulopathy and MODS. The mortality

rate was nil. Age and sex had no influence in the outcome of treatment.

CONCLUSION

The maximal thrombocytopenia is seen within the fifth day and eighth day from the onset of constitutional symptoms and more than 70% of patients show recovery of their platelet count after that. In the natural history of illness, by the 9th to 11th days, all the patients show convalescence and platelet count recover to the pre-illness level. At a low dose regimen, Hydrocortisone was effective in achieving a higher and early rise of platelet count in Viral Thrombocytopenia preventing serious complications.

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