Case Report

DENGUE FEVER: A TRIGGERING FACTOR FOR IMMUNE THROMBOCYTOPENIC PURPURA IN ADULT FEMALE- A RARE CASE REPORT

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Introduction

Immune thrombocytopenic purpura (ITP) can be both primary and secondary. The secondary form of this disease may occur in association with systemic lupus erythematosus, antiphospholipid antibody syndrome, immunodeficient states, lymphoproliferative disorders, viral infections and using drugs such as quinidine, sulfa and heparin. ITP can be either acute or chronic. The acute forms of ITP are more common among children, generally following 7 to 10 days of viral infection such as HIV-1, hepatitis C virus, varicella-zoster virus, rubella, influenza and Epstein-Barr virus and tend to have a self-limited course in up to 80% of the cases. On the other hand, ITP in adults almost invariably has a chronic course and requires treatment to obtain remission of the signs and symptoms. ITP in adults is rarely associated with viral infections.

In this article we report a case of ITP in an adult female that appeared following 7 days of classic dengue viral infection in a way that is similar to what happens in the majority of acute ITP cases among children.

Case report:

A 32 year old female presented with complaints of erythematous rash over the bilateral lower limbs and hemorrhagic blister over buccal mucosa. There was history of fever with chills 7 days back for one day for 3-4 hours. Patient was afebrile on admission. She had one live male child of 6 years and had one spontaneous abortion of (two and half month) 4 years back with no other significant past medical, surgical history or drug intake. Her menstrual cycle

was regular with normal flow. Her blood pressure was 110/70 mm of Hg with pulse rate of 84/min, regular. On general physical examination patient has anemia with erythematous rash over bilateral lower limbs and flushed skin with one hemorrhagic blister over buccal mucosa with flushed skin. No organomegaly or any active bleeding found. Her Hb was 7.9gm/dl. WBC counts was 3100/cumm with neutrophils 61%, lymphocyte 30%, eosinophils 1% and monocytes 8% and platelet count was 73000/cumm. Her peripheral blood smear showed microcytic hypochromic RBCs, leucopenia with reduced platelet counts. ESR was 16mm/hr. Her blood group was B positive. PT/INR was 12.6/0.96, aPTT -25.5s, RBS-80mg/dl, blood urea-12.2mg/dl, serum creatinine-0.62mg/dl, ALT-31, AST-63, TSH-3.64. HIV, HbsAg and HCV non reactive. Urine was normal, malaria parasite not seen on QBC and in PBF. Scrub typhus antibody negative. Dengue IgM antibody was positive by ELISA. Her fundus was normal. On next day there was significant reduction of platelet counts(10000/cumm) with new erythematous rash found over both upper limbs with purpura. 5units of RDP transfusion did not improve platelet counts. Her bleeding time (ive's method) was prolonged beyond 24 hours, RDP again transfused (5units) but platelet count did not improve but fall to 7000/cumm. She started menses which was heavy and 1 unit blood transfusion and 1unit SDP was given. At that time ITP was suspected and bone marrow aspiration was done which showed erythroid hyperplasia. Her ANA and APLA antibody were negative. Hence ruling out all the possibility of secondary thrombocytopenia diagnosis of ITP was made and patient was started on prednisone 1mg/kg

therapy (50mg, oral daily) and patient improved on 3rd day. Bleeding stopped, no new purpura appeared and platelet count improved on 7th day to 55000/cumm.

Discussion

Immune thrombocytopenic purpura is an autoimmune disorder characterized by low platelet count and skin-mucosal bleeding. In a study carried out between 1973 and 1995, the incidence of ITP among adults was estimated as 32 cases per million persons per year[2]. It generally affects adults in an idiopathic and chronic manner, and it is found twice as frequently among women as compared to men. In contrast, ITP is frequently acute among children, with a condition of petechia or purpura appearing a few days or weeks after an infection that, in most cases, is viral[3].

Thrombocytopenia associated with viral infection seems to result both from a reduction in the production of platelets from megakaryocytes and from a decrease in the half life of the platelets. The latter is the principal mechanism[4]. Platelets that are sensitized by autoantibodies are destroyed by cells of the reticuloendothelial system, particularly those of the spleen[5,6]. These autoantibodies against glycoproteins of the platelet membrane can be identified in 80% of the patients[7].

A variety of viruses have already been implicated in the etiopathogenesis of ITP, especially in children: HIV-1, hepatitis C virus, varicella-zoster virus, rubella, influenza and Epstein-Barr virus[3].

In 1993, Leong and Srinivas in Malaysia[8] reported a case of ITP in a girl aged 15 years who presented with prolonged thrombocytopenia following infection by the dengue virus (haemorrhagic form). The mechanism was presumed to be immunological, and the patient responded well to treatment using steroids.

The diagnosis of ITP is achieved by ruling out other possibilities. Other causes of thrombocytopenia should be investigated, such as: systemic lupus erythematosus, HIV/AIDS, pregnancy, use of medications (heparin, sulfa and quinidine) and recent blood transfusion, among others[3,9].

The duration of the bleeding helps in distinguishing between the acute and chronic forms. Detailed history-taking is important in order to obtain information on drug use and family history. The

presence of splenomegaly may be found in up to 10% of cases of ITP. If this is found, a diagnosis of some other disease should also be considered[10]. In prick tests for evaluating peripheral blood, immature platelets are frequently observed (megathrombocytes). Such tests are also useful for ruling out pseudothrombocytopenia and other haematological causes[3].

According to the guidelines of the American Society of Hematology, bone marrow aspirate is unnecessary among adults aged less than 60 years but is appropriate before splenectomy[9,11]. The presence of fever, joint pains, neutropenia or unexplained macrocytosis makes bone marrow examination essential[3].

The main objective in treating ITP is to achieve stabilization of the platelet count at a level that would prevent a major risk of bleeding.

Immune thrombocytopenic purpura in adults generally requires treatment using oral prednisone at the time when it is presented (at a dose of 1 to 1.5 mg/kg/day)[11]. Most adults with ITP generally start to respond to prednisone after two weeks of treatment[12,13]. Patients who continue to show symptoms and who have severe thrombocytopenia (platelet counts of less than 10 000/ml) after this time can then be assessed for the possibility of splenectomy.

Anti-D immunoglobulin, despite being less toxic and equally effective for Rh-positive patients, is considerably more expensive[11,14]. Intravenous immune globulin (1-2 g/kg/day for 1 to 5 consecutive days) is used for treating internal bleeding when the platelet count is less than 5000/ml despite corticoid therapy for many days, or when there is progressive or extensive purpura[15].

The decision to perform splenectomy depends on the severity of the disease, the tolerance towards corticoids and the patient's willingness. Although it is recommended when there is a need for more than 10 to 20 mg of

prednisone per day for a three- to six-month period in order to maintain the platelet count above 30,000/ml.

In present case platelet count were not available before the admission as patient never had any bleeding problem. However, considering this to be a primary case of ITP triggered by dengue virus, it is

possible that the attack on the platelets initially took place and lead to direct damage to the platelets by the virus itself[16]. The perpetuation of the low platelet count probably occurred through immunological mechanisms, thus characterizing a condition of ITP triggered by dengue virus infection and probably this is the first case from india.

CONCLUSION:

ITP in adults is generally a chronic and idiopathic disease. However, as could be seen in the present case, it may also triggered by dengue virus infection for the first time.

The factors that determine whether post-viral thrombocytopenia will follow an acute or chronic course remain unknown. It is thought that, in some immunologically predisposed individuals, the persistence of virus-induced antibodies against the platelets is the agent responsible for a chronic course of thrombocytopenia rather than an acute course[2]. However long term follow-up of the case will decide the course of ITP.

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