Parvovirus B19 Infection in Pediatric Patients with Hematological Disorders

Sir,

Parvovirus B19 (PVB19) is a childhood infectious disease of global proportions. It has specificity for red blood cell precursors and acute infection causes cessation of erythropoiesis for 5-7 days. Apoptosis of red cell precursors in the bone marrow decreases the hemoglobin level for 1-2 weeks until the bone marrow recovers.[1] Children with hematological malignancies receiving chemotherapy and children with chronic hemolytic disorders are at a higher risk of acquiring PVB19 infection.[1] We aimed to study the frequency of acute PVB19 infection and its implications in 50 children (age ≤ 15 years) with various hematological disorders in the period between January 2009 and July 2011. These included: aplastic anemia/pancytopenia 31), thalassemia (2), immune thrombocytopenia (ITP) (8), Henoch-Schönlein purpura (HSP) (2), leukemia (6), and Hodgkins lymphoma (1). Fifty febrile children with no hematological disorders were included as a control group. These children were assessed clinically and the serum samples were collected and tested for presence of anti-PVB19-specific IgM antibody by ELISA (NovaTec Immunodiagnostics, Germany). Recent PVB19 infection, as determined by the presence of serum IgM antibodies, was found in 20 percent (10/50) of these children with hematological disorders compared to none in the control group. All PVB19-infected children presented with fever and a sudden unexplained worsening of anemia. PVB19 infection was considered when the children had a sudden increase in need of blood transfusions of up to once a week during the non-intensive phase of chemotherapy in the absence of any obvious infection/blood loss. There was no other symptom. No child with PVB19 died. All patients showed marked improvement with increase in hemoglobin over a period of 3-6 weeks. Management was supportive in the form of blood transfusions. One child was given Intra Venous Immunoglobulin (IVIg). It is known that individuals with decreased erythrocytosis seen in chronic hemolytic disorders, such as thalassemia, autoimmune hemolytic anemia, and in children with hematological malignancies who are anemic due to malignant infiltration of bone marrow and cytotoxic drugs, can develop transient aplastic crisis if infected with PVB19.[2-4] This virus has specificity for red blood cell precursors and can cause a complete cessation of erythrocyte production. This can aggravate anemia, worsen the general condition of patients, and in severe cases can lead to life-threatening complications such as circulatory collapse, congestive heart failure, cerebrovascular accident, or acute splenic sequestration[1] Serum PVB19-DNA and specific IgM can be determined for accurate diagnosis. However, since DNA may circulate for a few days (7-12 days) only, detection of IgM antibodies is a more reliable indicator of recent PVB19 infection.[5]

In the present study, 20% of children with hematological disorders were found to be PVB19 IgM positive and this infection likely contributed to aggravation of anemia. Acute PVB19 should be suspected when there is unexplained worsening of anemia requiring increased frequency of blood transfusions or in aplastic crisis in children with hematological disorders. Early detection and treatment are essential to limit the effects of associated complications.

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