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■ Case Report

Short course of conventional dose oral prednisone therapy in immune thrombocytopenic purpura associated with parvovirus B19 infection

Parvovirüs B19 enfeksiyonunda görülen immün trombositopenik purpurada kısa süreli konvansiyonel doz oral prednizon tedavisi

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ÖZ

Çocukluk çağı immün trombositopenik purpura (İTP) genellikle benign ve kendini sınırlayan bir hastalıktır. Genellikle viral bir hastalık ya da aşılama sonrası oluşur. Akut İTP olan bazı hastaların kan veya kemik iliği örneklerinde İnsan parvovirüs B-19 (HPV) tespit edilmiştir. HPV nedeniyle İTP tedavisi tartışmalıdır. Bu yazıda makroskopik hematüri ve HPV'ye bağlı akut İTP tanılı olgunun kısa süreli konvansiyonel doz oral prednizon ile başarılı tedavisini sunduk. Güvenli ve etkili olan bu tedavi, HPV ilişkili İTP hastalarında İVİG tedavisine alternatif bir seçenek olabilir.

Anahtar kelimeler: İmmün trombositopenik purpura, parvovirus B19, prednison

ABSTRACT

Childhood immune thrombocytopenic purpura (ITP) is usually benign and a self-limited disorder. Often there is a preceding viral like illness or vaccination. Human parvovirus B-19 (HPV) has also been detected in blood or bone marrow samples of some patients with acute ITP. Treatment of ITP due to HPV is controversial. We report a case presented with macroscopic hematuria and diagnosed as acute ITP due to HPV, and treated with short course conventional dose oral prednisone successfully. This treatment seems to be safe and effective and may be an alternative treatment option to IVIG therapy in patients with HPV associated with ITP.

Key words: Immune thrombocytopenic purpura, parvovirus B19, prednisone

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Introduction

Childhood immune thrombocytopenic purpura (ITP) is usually benign and a self-limited disorder. A typical history is bruising and petechiae in a child who is otherwise healthy. Often there is a history of a viral like illness or vaccination 1-3 weeks prior to the presentation [1]. Many specific viral infections such as Epstein-Barr virus (EBV), cytomegalovirus (CMV), varicella, rubella and mumps infections have been proposed as etiologic factors of acute ITP [2,4]. Human parvovirus B-19 (HPV) has also been detected in blood or bone marrow samples of some patients with acute ITP [4-6]. However treatment of ITP due to HPV is controversial.

We report a case with acute ITP due to HPV who was treated with short course, conventional-dose oral prednisone therapy successfully.

Case report

An 8-year-old boy was admitted to our hospital because of purpuric rash on his trunk and extremities, gingival bleeding, macroscopic hematuria and fever for 5 days. On physical examination he was normal except petechial rash on his lower extremities, gluteal region and wet purpuras on buccal mucosa. A purulent secretion was noted at the nasopharynx. His hemoglobin was 11g/dl, white blood cell count $6.5 \times 10^9/l$, platelet count $1.0 \times 10^9/l$, reticulocyte count 0.2%, with 54% granulocytes, 38% lymphocytes, 8% monocytes. Peripheral smear revealed normochromic normocytic erythrocytes and paucity of platelets. Bone marrow aspiration smear demonstrated normal cellularity with normal maturation of myeloid precursors however, erythroid cell line was hypoplastic and only a few giant pronormoblasts could be seen. Erythroid myeloid cell ratio was 3/100. Megakaryocytes were increased with normal morphology. Many red blood cells were detected in urine analysis. His biochemical tests prothrombin time, active thromboplastin time, fibrinogen levels were normal. Anti-nuclear antibody (ANA) and anti DNA tests and Coombs tests were negative. Serologic tests for hepatitis viruses A, B, C, human immunodeficiency virus (HIV), CMV, EBV, herpes simplex virus, measles and rubella were all negative. Whereas IgM type of antibodies against HPV-B19 was positive with negativity of anti HPV-B19 IgG which suggested an acute infection. Abdominal ultrasonography examination was normal.

Immune thrombocytopenic purpura and acute maxillary sinusitis were diagnosed. Since he had both acute sinusitis and HPV-B19 infection, intravenous immunoglobulin (IVIG) and amoxicillin-clavulanic acid therapy were planned. Unfortunately, IVIG could not be provided. Because of his severe urinary bleeding, urgent treatment with prednisone (2mg/kg/day) was started. On the 2nd day of the prednisone therapy, macroscopic hematuria was resolved and after 5 days therapy with prednisone, platelet count was increased to $157 \times 10^9/l$. Prednisone therapy was stopped at 7th day. Anti IgM HPV-B19

disappeared and HPV IgG became positive by 3 months and his platelet count remained within the normal range during the follow-up.

Discussion

Parvovirus B19 is known to be the causative agent of erythema infectiosum in children. It infects primarily the erythroid progenitors and causes transient erythroblastopenia which may result in severe anemia in the patients with chronic hemolysis. Thrombocytopenia and neutropenia have also been reported in some HPV-B19 infected cases [7-8]. Inhibitory effect on megakaryocyte colony-forming unit due to nonstructural protein (NS-1) of HPV and destructive thrombocytopenia resulting from antiplatelet antibodies and excessive clearance in the reticuloendothelial system are thought the causes of thrombocytopenia [4, 9]. Patients with acute ITP due to HPV infection do not distinguish themselves by preceding symptoms such as exanthema and arthropathy and bone marrow examination of such patients generally do not reveal severe erythroblastopenia and giant pronormoblasts that are typically seen in the patients with chronic hemolysis during acute HPV-B19 infection [4]. Our patient had a history of fever but no rash or arthralgia, however examination of his bone marrow aspiration revealed erythroblastopenia and giant pronormoblasts suggesting HPV infection.

Childhood acute ITP is generally a self-limited benign disorder and in most patients it recovers with or without therapy within 6 months. Patients without severe bleeding do not need therapy however life threatening bleeding or bleeding that leads to severe hemoglobin level drops warrant therapy. Numerous therapy modalities with IVIG, anti-D and steroids have been recommended for the management of acute ITP [1, 10].

In general, IVIG is the treatment of choice for the patients with severe bleeding and concurrent infection as in our patient. For this reason we intended to give him IVIG but it could not be provided. Whereas we felt he needed an urgent therapy because of his severe, gross hematuria, erythroblastopenia and reticulocytopenia with impending anemia and we administered conventional dose oral prednisone therapy. Although we were anxious about the corticosteroid induced immunosuppression would result in a failure to produce neutralizing antibodies and the infection may persist with bone marrow failure, however the patient recovered completely. Heegard et al compared the effects of steroid versus IVIG in a small group with parvovirus infection and ITP whereas the dose of steroid therapy was not given in that study. The duration of disease was brief in IVIG group but chronicity developed in most of the patients given steroids [4]. Murray et al had treated 35 children with HPV positive ITP with oral prednisone at 60 mg/m²/day for 14 days and only 20% had developed chronic ITP [5]. We can speculate that high doses of methylprednisolone or prolonged use of corticosteroids may result in long lasting immunosuppression and slow elimination of HPV may cause chronicity.



In conclusion, the use of a short course of conventional-dose oral steroid treatment seems to be safe and effective and may be an alternative treatment option to IVIG therapy in patients with HPV associated with ITP. However further studies are required to confirm our suggestion.

Declaration of conflicting interests

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