Alloimmune Thrombocytopenia in a Newborn

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Abstract
A case of alloimmune thrombocytopenia in a male newborn who presented with cutaneous petechiae and purpura is reported. He had isolated thrombocytopenia and good general condition. The platelet antigenic study of the parents was compatible with the diagnosis. Other investigations were normal. Platelet level reached to normal after treatment with intravenous immunoglobulin G (IVIG). Review of literature revealed that incidence of this disorder is one in 4,000-5,000 live births.

Key words: Alloimmune thrombocytopenia, newborn

Introduction
In neonatal alloimmune thrombocytopenia, the infant possesses a platelet antigen of paternal origin that is lacking in the mother. The mother produces an antiplatelet antibody on stimulation by fetal platelets that cross the placenta. The antibody is most often directed against the PLM1 antigen, since only 3% of the population is negative for this antigen. Incidence of this disorder is estimated to be one per 4,000-5,000 live births.

The typical infant with this disorder is term and thrombocytopenia is unexpected. Cutaneous manifestations of severe thrombocytopenia are often the only abnormalities found on physical examination, but these patients are at risk for serious hemorrhage, particularly into the central nervous system, which in some cases occurs in utero. The most important differential diagnosis are sepsis, intrauterine infections, maternal H1P and drugs.

Therapeutic interventions in this disorder are: transfusion of washed, irradiated maternal platelets (the best treatment), IVIG and exchange transfusion with variable success. The risk of disorder recurring in subsequent pregnancies is 75%.

Case report
A male newborn in the nursery department of Iranian Hospital was born via cesarean section, due to failure to progress with normal Apgar scores.

Body weight was 2.5kg. In the perinatal history, there were no history of using medicines and presence of clinical idiopathic thrombocytopenic purpura in the mother. He got petechiae and purpura on the upper extremities in the 2nd day of life. CBC showed isolated thrombocytopenia (platelet level was 30,000/mm³). His general condition was normal, without any congenital anomaly.

Investigations including TORCH study, sepsis work-up, platelet and peripheral blood smear of the mother were done with negative results.

Because the most probable diagnosis was alloimmune thrombocytopenia, IVIG was started (1g/kg/day for 2 days). After treatment, the platelet level reached to 180,000/mm³, and then to 240,000/mm³.

Platelet antigenic study of the parents showed positive PLM1 antigen in the father. By six months follow-up, the patient’s platelet level was in normal range.

Discussion
Alloimmune thrombocytopenia is an uncommon disorder in neonatal period and cutaneous manifestations of severe thrombocytopenia (e.g. petechial rash) are often the only abnormalities found on physical examination. This case was presented with this sign. A complete blood count shows severe isolated thrombocytopenia with a normal Hb and WBC, as this case. The platelet-specific antigen system most often involved in this disorder is PLM1. Other platelet-specific antigens are involved less frequently. In this case PLM1 antigen was involved.

The incidence of alloimmune thrombocytopenia is probably higher than the reported incidence of one per 5,000 live birth. This opinion is based on the finding of three cases of this disorder in a prospective study of 5,000 pregnant women.

Early diagnosis and effective therapy of infants with alloimmune thrombocytopenia is important, because of risk for serious hemorrhage, particularly into the central nervous system, that sometimes occurs in utero. The second reason is that the risk of the disorder recurring in subsequent pregnancy is high; approximately 75% in sensitized PLM1 negative mother. Therefore, in presence of positive family history, intrauterine diagnosis should be made and in confirmed cases, antenatal treatment must be started.

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Delivery by caesarian section is recommended if fetal platelet count is less than 50,000/mm³. And finally, early diagnosis is important because therapeutic interventions are different in various types of neonatal thrombocytopenia. Maternal platelet transfusion, after plateletpcresis and irradiation is the treatment of choice. In this case because preparation of this product was nearly impossible, high dose IVIG was used with success.

References