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NEONATAL AUTOIMMUNE THROMBOCYTOPENIA DUE TO MATERNAL IMMUNE THROMBOCYTOPENIC PURPURA: REPORT OF THREE CASES

İMMÜN TROMBOSİTOPENiK PURPURALI ANNE BEBEKLERİNDE TROMBOSİTOPENİ: ÜÇ OLGU SUNUMU

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ABSTRACT

The overall frequency of thrombocytopenia in infants born to mothers with ITP is quite low, and about 1-5% of infants will have platelet count less than 20 000/ µL at birth, and about 1% will have significant bleeding complications. Three infants with severe thrombocytopenia born to mothers with ITP are described in this report. The infants were born from two pregnancies. Two of the infants were twins, and were born to a mother with ITP diagnosed at 22nd weeks of gestation. Their cord blood platelet counts were 6600/µL, and 31900/µL, respectively. The third infant was born to a mother with chronic ITP. The lowest platelet count was 20600/ µL at postnatal day five. All infants received intravenous immunoglobulin therapy and one of them received platelet suspension infusion. Although neonatal thrombocytopenia associated with ITP is generally moderate or mild, it is important to note that some infants will have severe thrombocytopenia for several days following delivery.

Keywords: Neonatal Thrombocytopenia, IVIG, ITP

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ÖZET

ITP tanılı annelerden doğan bebeklerde trombositopeni sıklığı oldukça düşüktür. Trombosit sayısının 20000 / µL 'den az olma ihtimali % 1-5 arasındadır ve yaklaşık % 1'inde önemli derecede kanama komplikasyonu gelişir. Bu raporda, iki ITP'li anneden doğan üç bebek tanımlandı. İkizler 22. gebelik haftasında ITP tanısı alan anneden doğdular. Kordon kanı trombosit değerleri sırasıyla 6600/µL ve 31900/µL olarak tespit edildi. Üçüncü bebek kronik ITP'li anneden doğdu. Bu bebekte en düşük trombosit değeri beşinci günde 20600/µL olarak tespit edildi. Tüm bebekler intravenöz immunoglobulin alırken bir bebek trombosit süspansiyonu aldı. ITP ile ilişkili yenidoğan trombositopenisi genellikle hafif ve orta şiddette olmasına rağmen bazı yenidoğanlarda doğumu takip eden günlerde ağır trombositopeni gelişebilir.

Anahtar Kelimeler: Yenidoğan Trombositopenisi, IVIG, ITP

INTRODUCTION

Platelet counts in healthy fetuses and neonates are the same as in healthy children and adults. Several studies show that >98% of term neonate whose mothers have normal platelet counts have platelets above 150.000/µL (1). Neonatal platelet counts of 100,000 to 150,000/µL represent "mild thrombocytopenia;" platelet counts of 50,000 to 100,000/µL are considered "moderate thrombocytopenia," and platelet counts of less than 50,000/µL are considered "severe thrombocytopenia" (2). The most common cause of neonatal autoimmune thrombocytopenia is ITP, yet it is also seen in other autoimmune diseases such as systemic lupus erythematosus, lymphoproliferative disorders, and Graves disease (3).

Approximately, 0.1%-0.2% of pregnancies are complicated by ITP (4). Maternal and fetal complications may occur, and in this case additional monitoring and therapy may be required. There may be marked disparities between the maternal and fetal platelet counts. No antenatal measures reliably predict neonatal outcomes (5). Neonatal thrombocytopenia associated with maternal ITP is milder than isoimmune thrombocytopenia (6). The risk of severe fetal and neonatal thrombocytopenia in infants born to mothers with ITP is rare (7). In this report, we present three cases of severe neonatal thrombocytopenia resulting from maternal ITP.

CASE REPORTS

This report includes three infants from two pregnancies, with severe thrombocytopenia born to two mothers with ITP. The women underwent cesarean section.

CASE 1 AND CASE 2

The male twins were born at 36 weeks to a woman after a complication with ITP pregnancy. The mother was diagnosed with ITP at 22 weeks' gestation and received steroid therapy throughout her pregnancy. At the time of delivery, the mother's platelet count was 51000/µI.

One of the twins' 'birth weight was 2180 g and his physical examination was normal. Cord platelet counts were 6600/µL. The peripheral blood smear showed normal red cell structure, with few platelets without clumping. On the first day after birth, the infant received 15 cc/kg apheresis thrombocyte suspension due to prematurity and risk of hemorrhage. Following the thrombocyte suspension, the infant's platelet count reached 15000/µI, and 1 g/kg intravenous immunoglobulin (IVIG) therapy was started on the same day. Therapy with IVIG was given for two days. The platelet counts were 14900/µL, 32500/µL, 36800/µL, 50500/µL, and 69000/µL on days 3, 4, 5, 7, and 9 after treatment.

The other twin's birth weight was 1990 g and his physical examination was normal. Cord platelet count was 31900/µL. The peripheral blood smear showed normal red cell structure with few platelets without clumping. Platelet count decreased down to 25900/µL on day 2, and IVIG therapy (1 g/kg over 2 days) was initiated. After the treatment, platelet counts increased up to 37600/µL, 57000/µL, and 162000/µL on days 3, 4, and 7.

CASE 3

The third infant was born at term to a mother with chronic ITP. The mother had received a diagnosis of ITP 18 years earlier, and a splenectomy had been performed 5 years before conception. At delivery, the maternal platelet count was 62000/µL. The infant was female with birth weight of 3500 g, and had platelet counts of 65000/µL, 43000/µL, 39900/µL, and 20600/µL on postnatal days 2, 3, 4, and 5. The peripheral blood smear had few platelets without clumping. IVIG (1 g/kg) was administered to the infant on postnatal day 5 over 2 days. After the treatment, the platelet count reached 31200/µL. The infant was followed up with serial test showing normal platelet count.

None of the infants in these cases had intracranial hemorrhage, and all the infants were followed up in the pediatric hematology unit.

DISCUSSION

Immune thrombocytopenia (ITP) occurs in one or two of every 1,000 pregnancies, and accounts for 5% of cases of pregnancy-associated thrombocytopenia (8, 9). Pregnant women with ITP require careful monitoring. Treatment is recommended for women with a platelet count below 10,000/µL at any time during pregnancy, or below 30,000/µL in the second or third trimester or when pregnancy was associated with bleeding (10). While many consider corticosteroids to be the first-line treatment for ITP in pregnancy for their efficacy and low cost (11), others suggest that IVIG should be the first-line therapy for pregnancy-associated ITP, especially when a long therapy is not required (12).

The overall frequency of thrombocytopenia in infants born to mothers with ITP is quite low, and about 1%-5% of infants will have a birth platelet count less than 20×10^9/L, and about 1% will have significant bleeding complications (4,13). Following delivery, cord blood platelet count should be determined in all cases. After birth, thrombocytopenia usually worsens during the first days of life with a nadir between days 3 and 5, lasting from 10 to 60 days (14). In this report, the three infants had their lowest platelet counts on days 1 (cord platelet count), 2, and 5.

Neonatal thrombocytopenia is usually mild to moderate; resolves spontaneously, and requires no specific therapy (15). The major risk of severe thrombocytopenia is intracranial hemorrhage leading to death or neurological impairment. The principal aim in managing affected infants is to prevent the deleterious consequences of severe thrombocytopenia. Autoimmune thrombocytopenic purpura in pregnant women can lead to moderate or severe thrombocytopenia in the fetus or the newborn irrespective of the mother's disease status. Fetal thrombocytopenia may occur as early as 20 weeks' gestation. The frequency of intracranial hemorrhage has been estimated to be 1%–3% of cases. Fetal thrombocytopenia cannot

be prevented. Postnatal management includes IVIG, which has been found to be effective in most cases, and low-dose steroid therapy, which may be prescribed as a hemostatic agent (14). Since the effect is delayed for 12 to 18 hours after injection, IVIG administration can only be considered when hemorrhage is not obvious (16). Our patients had received IVIG, and all responded to the treatment.

Platelet transfusion is used to treat bleeding and to decrease the risk of serious hemorrhages. In patients currently in neonatal intensive care units, it is difficult to define the widely-accepted thresholds for transfusion, which may lead to a significant variation in the practice between centers (10). Generally, platelet transfusions are indicated in preterm and sick infants when the platelet count is less than 50000 /µL and in otherwise healthy term infants when the platelet count approaches 20000/µL (3). In this report, one of the infants who had a platelet count of 6600/µL on day 1 (cord platelet count) received a platelet transfusion due to a risk of intracranial hemorrhage and prematurity.

CONCLUSION

Although neonatal thrombocytopenia associated with ITP is generally moderate or mild, it is important to note that some infants may have severe thrombocytopenia for several days following delivery. Thus, infants should be given rather close follow-up in order to prevent any potential complication, and initiate any therapy as soon as possible when and if needed.

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