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CASE REPORT

Maternal Immune Thrombocytopenic Purpura Leading to Severe Neonatal Autoimmune Thrombocytopenia: Report of Two Cases

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Abstract

Introduction: In neonatal intensive care units, neonatal thrombocytopenia is one of the common hematological abnormality seen. Neonatal autoimmune thrombocytopenia should be considered in any neonate who is born to a known case of immune thrombocytopenia purpura (ITP) mother, with early onset thrombocytopenia without any signs of sepsis. Neonatal ITP is a condition of autoantibody mediated platelet destruction. **Case details:** Two neonates with thrombocytopenia, born to mothers with ITP are described in this report. Lowest platelet count noted was 7000 cells/cmm in one of the neonate. Both neonates received intra venous immunoglobulin (IVIG) while one neonate had persistent and severe thrombocytopenia requiring multiple random donor platelet (RDP) transfusions followed by oral steroid as well. **Conclusion:** Neonatal thrombocytopenia associated with maternal ITP need close monitoring, early sampling and diagnosis to prevent any possible complications and warrant early initiation of treatment.

Keywords: Neonatal Thrombocytopenia, ITP, IVIG, Immune thrombocytopenia

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Introduction

Immune thrombocytopenia is an autoimmune disorder characterized by low platelet counts due to accelerated destruction by autoantibodies. The incidence of ITP in pregnancy ranges from 1,000-10,000 pregnant mothers accounting for 3-5% of thrombocytopenia in pregnancy. Among the neonates born to mothers with ITP Incidence is around 10-25% [1].

Thrombocytopenia is classified on basis of time of onset as early onset (at <72 hours of life) or late onset (at > 72 hours of life) and on basis of total platelet count as mild (platelet count 1,00,000-1,50,000/cmm), moderate (platelet count 50,000-1,00,000/cmm), severe (platelet count < 50,000/cmm) [2].

Neonatal thrombocytopenia is milder when associated with maternal autoimmune thrombocytopenia than isoimmune thrombocytopenia. Bleeding manifestations like mucocutaneous bleeds, gastrointestinal and umbilical bleeds are less common [1].

This report details two neonates with thrombocytopenia, born to mothers with ITP.

Case 1

A female baby was born at 38 weeks 5 days of gestation to a 32 years old primigravida mother via normal vaginal delivery, weighing 2825 grams. The mother has been diagnosed of ITP from last 5 years and was on oral steroids (prednisolone). She underwent splenectomy 7months prior to delivery. Her platelet count was 58000/mm3 and had received RDPs prior to delivery. She was normotensive and rest of her antenatal period was uneventful.

The baby cried immediately after birth with APGAR of 9,9 at 1min and 5 min of life respectively. Baby was shifted by mother side for exclusive breast feeding. On examination baby did not have any evidence of bleeding such as bruising, bleeding from oral mucosa or any other site.

Given the mother's history of ITP, initial platelet count of baby done at 24 hours of life was 7000/mm3 with peripheral blood film suggestive of large platelets. All other biochemical parameters were within normal limit. Due to early onset severe thrombocytopenia, baby was shifted to neonatal intensive care unit (NICU). After sending septic workup, considering the risk of massive bleed, she was transfused with RDP and started on IVIG @ 2mg/kg (over 2 days). Neurosonogram (NSG) done in view of severe thrombocytopenia, was normal with no evidence of Intra Cranial Haemorrhage. There was no evidence of bleeding from any site and baby was clinically well. After IVIG transfusion, on serial monitoring, platelet count improved to 50,000/mm. RDP were transfused at platelet count below 30,000/mm3. On day 5 of life, again platelet count decreased to 19,000/mm3, so RDP and 2nd dose of IVIG @ 2mg/kg (over 2 days) was given. Repeat USG head was normal. Septic screen workup was negative. As platelet count was persistently below 50,000/mm3 by day 9 of life, oral steroid (prednisolone) was added and was stopped once platelet count improved.

Table 1. Overview of laboratory workup done for the neonate.

Laboratory Parameter (day of life)	Haemoglobin (g/dl)	Total Leucocyte Count (cells/cmm)	Platelets (cells/cmm)	CRP (mg/dl)	Blood C/S	NSG
DAY 2	19.6	18100	7000	4.86	Sterile	Normal
Day 3	19	13700	10000			
Day 4	18	13200	50000			
Day 7	17.3	22400	20000			
Day 8	17.2	11900	25000			
Day 9	17.4	8800	21000			

Case 2

A male baby was born at 37 weeks 5 days of gestation to a 33 years old G2P1L1 mother by lower segment cesarean section (LSCS) (indication- previous LSCS in labour) with birth weight of 2980 grams. Mother is a known to have ITP with a platelet count of 90,000/cmm at the time of delivery. She was normotensive and rest of her antenatal period was uneventful.

Baby cried immediately after birth with APGAR of 9,9 at 1min and 5 min of life respectively. Baby was moved to mother's side for exclusive breast feeding. Upon examination, the baby showed no signs of bleeding, such as bruising or bleeding from oral mucosa or any other site.

As Mother is a k/c/o ITP, complete blood count of neonate was done at 24 hours of life that showed platelet count of 93000/mm3. On serial monitoring platelet count reduced to 36,000/mm on day 5 of life. In view of severe thrombocytopenia, baby was shifted to NICU and was started on IVIG @ 2mg/kg over 2 days. NSG done in view of severe thrombocytopenia was normal and there was no Intra Cranial Haemorrhage. There was no evidence of

bleeding from any site and baby was clinically well. After IVIG transfusion, on serial monitoring platelet count improved to 1,71,000/mm. This baby did not require RDP transfusion as lowest platelet count recorded was 36000/cmm.

Table 2. Overview of laboratory workup done for the neonate

Laboratory Parameter (day of life)	Haemoglobin (g/dl)	Total Leucocyte Count (cells/cmm)	Platelets (cells/cmm)	Neurosonogram
Day 2	14.4	13700	93000	Normal
Day 4	15.5	88000	74000	
Day 5	15.4	10500	36000	
Day 6	14.1	9300	67000	
Day 9	13.5	9800	171000	

Discussion

The incidence of thrombocytopenia in neonates born to mothers with immune thrombocytopenic purpura ranges from 20 to 80% with 10-30% of neonates experiencing severe thrombocytopenia [1].

Mothers with ITP require frequent platelet count monitoring in antenatal period. If the Platelet count is greater than 30,000/cmm, no therapy is generally required. However treatment is imperative if the platelet count is below 30,000 /cmm or if 10 days prior to any planned procedures bleeding occurs. Prednisolone is started as 1st line of therapy with platelet transfusion at counts below 30,000/cmm. Other options available are IVIG, azathioprine, methylprednisolone and splenectomy. Minimum platelet count required prior to cesarean section and and for epidural anesthesia is 50,000/cmm and 80,000/cmm respectively [2].

Mothers with ITP or autoimmune disease such as systemic lupus erythematosus produces antiplatelet antibodies against platelet glycoproteins IIb-IIIa or Ib-IXxcomplex. Transplacental transfer of these antibodies during pregnancy leads to accelerated destruction of platelets of neonates leading to neonatal ITP [3]. Other possible mechanism is cytotoxic T cell or complement mediated destruction.

Neonatal ITP is suspected when neonates is healthy, typically not sick, has mild to moderate thrombocytopenia, it is early in onset, associated with maternal ITP or autoimmune disease, resolves within a week without major bleed [4].

Newborns with neonatal ITP may exhibit mucocutaneous bleeding. Although mucocutaneous bleeds, gastrointestinal and umbilical bleeds are less common and the risk of intracranial haemorrhage is also below 1% [5]. Neurosonogram should be performed in all neonates with platelet count <50,000/cmm.

Treatment options include RDP (@15ml/kg) and IVIG (2mg/kg IV for 2 consecutive days) provided there is bleeding or platelet count is under 30,000/cmm. If the platelet count is between 30,000 to 50,000/cmm without active bleeding, IVIG alone can be given. Persistent thrombocytopenia warrants the need of second dose of IVIG [6].

Thrombocytopenia usually resolves in a week with nadir of platelet count occurring between 3-7 days and rarely persists till 4-6 weeks [7].

Fetal thrombocytopenia can occur as early as 20 weeks of gestation [8].

In our first case, neonate required multiple RDP transfusions and two doses of IVIG followed by oral steroids due to persistent thrombocytopenia.

Whereas in second case, neonate required only single dose IVIG and platelet count improved gradually.

Conclusion

Though neonatal thrombocytopenia associated with maternal ITP is generally mild or moderate but some neonates may have early onset severe thrombocytopenia for several days post delivery. Such neonates need close monitoring, early sampling and diagnosis to prevent any possible complications and warrant early initiation of treatment.

Statements and Declarations

Conflicts of interest

The authors declares that they do not have conflict of interest.

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