

## THROMBOCYTOPENIA IN NEONATE ADMITTED TO INTENSIVE CARE UNITE

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## ABSTRACT

Neonatal thrombocytopenia is defined as a platelet count less than  $150 \times 10^9 /L$  in any neonate of a viable gestational age. Thrombocytopenia is one of the most common hematological abnormalities disease in neonate intensive care unit. **Objective:**-The present study was conducted to study the prevalence of thrombocytopenia in the first four month in this year and to see degree of thrombocytopenia. **Material and method:** The study was conducted on a group of eighty blood sample from neonate less than 72 hrs admitted to intensive care unit (NICU), 42 boy and 38 girls with mean age  $\pm$  SD ( $1.48 \pm 0.62$ ) days. The blood sample (5 ml) from all newborn was collected in EDTA tube to measure platelets count in neonate admitted to intensive care unit (NICU). **Result:** Platelet count in all neonate less than 72 hrs was normal mean  $\pm$  SD ( $243.6 \pm 127.2$ )  $\times 10^9 /L$ , there were fourteen neonate have thrombocytopenia mean  $\pm$  SD was ( $96.07 \pm 38.8$ )  $\times 10^9 /L$ . Prevalence of thrombocytopenia in neonate admitted to NICU through four month was 16.2%. **Conclusion:** Prevalence of thrombocytopenia through four month is 16.2%. Fortunately most episodes are mild resolve spontaneously without apparent clinical sequel.

## INTRODUCTION

A number of large studies have shown that the fetal platelet count is above  $150 \times 10^9 /L$  by the second trimester of pregnancy, and then remains fairly constant until term.<sup>[1]</sup> Therefore the platelet count of all healthy newborn infants, regardless of gestational age, should be  $150 \times 10^9 /L$  and above, and counts below this represent thrombocytopenia, just as in older children.

Degrees of thrombocytopenia can be further subdivided into mild (platelet count 100,000 to 150,000/ $\mu$ L), moderate (50,000 to 99,000/ $\mu$ L), and severe (<50,000/ $\mu$ L). However, healthy preterm and term newborns can have platelet counts below the defined normal platelet count.<sup>[2-4]</sup> This was best illustrated in a study from the Intermountain Health care group that reviewed the platelet counts of 34,146 neonates (gestational age [GA] from 22 to 42 weeks) during the first three days of life.<sup>[5]</sup>

Neonatal thrombocytopenia is defined as a platelet count less than  $150 \times 10^9 /L$  in any neonate of a viable gestational age. Thrombocytopenia is one of the most common hematological abnormalities except iatrogenic anemia in neonate.

The hallmark of platelet disorders is mucocutaneous bleeding however newborns may present more severely with, petechiae, purpura, and intra-cranial hemorrhages.<sup>[6]</sup>

Thrombocytopenia is either present at birth or develops in the first 72 hours of life in 75% of the neonates. Only a small number of these infants have immunological disorders or coagulopathy; the majority of newborns with thrombocytopenia are born prematurely after pregnancies complicated by placental insufficiency and/or fetal hypoxia.<sup>[7]</sup>

## AIM OF THE STUDY

To evaluate percentage of thrombocytopenia in neonate intensive care unit in Derna city.

Through the first four month in 2017, to know degree of thrombocytopenia is sever or mild or moderate

## MATERIALS AND METHODS

The study was conducted on a group of eighty blood sample from neonate less than 72 hrs admitted to intensive care unit (NICU), (42 boy and 38 girl) with mean age  $\pm$  SD ( $1.48 \pm 0.62$ ) days from first of January to the end of April, we exclude neonate age more than 72hrs i.e the study concentrate about neonate less than 72 hrs.

## Sample assay

The blood sample (5 ml) from all newborn was collected in EDTA tube to measure platelets count in neonate admitted to intensive care unite (NICU).

Platelets were analyzed in automated counters by (electrical impedance) DC detection methods. **The principle** is that the blood sample is aspirated and measured to predetermined volume, diluted at a specific ratio, and fed into each transducer. The transducer chamber has 2 min holes called aperture. Blood cells suspended in the diluted sample are passed through an aperture causing a change in the direct current resist between electrodes. The size of the blood cell is detected as electric pulses. The number of blood cells is calculated by counting the pulses. The platelet count values found are shown.

## RESULTS

A total of 80 blood sample from babies less than 72 hrs were measured to estimate.

**Table 3: platelet count in all neonate in intensive care unit.**

	Number of cases	Mean $\pm$ SD
Platelet count in all neonate	80	243.61 $\pm$ 127.2
Platelet count less than $150 \times 10^9/l$	14	96.07 $\pm$ 38.82

**Table 4: Degree of thrombocytopenia in neonate in intensive care unit.**

	Mild thrombocytopenia	Moderate thrombocytopenia	Sever thrombocytopenia
Number of cases	7	4	4
Mean $\pm$ SD	136 $\pm$ 15.8	80.5 $\pm$ 10.4	32 $\pm$ 4.3

## DISCUSSION

Thrombocytopenia is the one of the most common hematological abnormality seen in the NICU but may be missed if not specifically looked for. Most cases of thrombocytopenia in babies admitted to NICUs are discovered "incidentally.

Despite of its high prevalence, several basic path physiologic questions regarding neonatal thrombocytopenia remain unsolved.<sup>[1]</sup> Clinically, thrombocytopenic neonates may vary from asymptomatic to mild oozing from vein puncture site to severe single organ hemorrhage (pulmonary, gastrointestinal, intra ventricular) to disseminated intravascular coagulation.

The causes of newborn thrombocytopenia in the otherwise healthy newborn differ from thrombocytopenia seen in the sick newborn. The mother's pregnancy history and physical assessment can help determine a diagnosis. With NAIT, the mother usually experiences an uneventful pregnancy with normal platelet levels.<sup>[3]</sup> Alternately, thrombocytopenia may be seen in the neonate of women with a history of pregnancy-induced hypertension (PIH), drug use, or infection.<sup>[10]</sup> The most common cause of severe thrombocytopenia in the well newborn is NAIT.<sup>[8]</sup> NAIT accounts for 20 percent of cases of thrombocytopenia in the healthy newborn.<sup>[5]</sup> The second most common cause, resulting in 10 percent of the cases of neonatal thrombocytopenia, is maternal idiopathic thrombocytopenia purpura (ITP).<sup>[17]</sup> Although

Platelet count in neonate less than 72 hrs, platelet count was normal mean  $\pm$  SD was  $(243.6 \pm 127.2) \times 10^9/l$ . there were fourteen neonate have thrombocytopenia mean  $\pm$  SD was  $(96.07 \pm 38.8) \times 10^9/l$ . as in table 3. Prevalence of thrombocytopenia in neonate admitted to NICU through four month was 16.2 %, seven cases have mild thrombocytopenia mean  $\pm$  SD  $136.7 \pm 15.8 \times 10^9/l$ , four cases have moderate thrombocytopenia  $80.5 \pm 10.4 \times 10^9/l$  and four cases have severe thrombocytopenia  $32 \pm 4.3 \times 10^9/l$  as in table 4.

**Statistical analysis:** Result are expressed as mean values  $\pm$  SD. Data were analyzed by t test using. Significant difference was considered to exist at P value less than 0.05.

only 10 percent of ITP mothers have infants with thrombocytopenia, it can be severe.<sup>[6,12]</sup>

Percentage of thrombocytopenia in our study was 16.2 % whereas Several studies have reported thrombocytopenia in 22 to 35% in all the neonates admitted to NICU.<sup>[1]</sup>

The most common causes of thrombocytopenia in neonate after the first 72 hrs of life was sepsis by contrast sepsis and necrotizing are uncommon causes of early neonate thrombocytopenia.

The infant's complete blood count (CBC) is generally normal other than the low platelet count; although if bleeding is severe, anemia may be present. The parents, not the infant, are screened for antigens.<sup>[14]</sup> NAIT is confirmed by identifying antiplatelet antibodies in the mother's blood as well as antigen incompatibility between the mother and the father.<sup>[9,14]</sup> The mother should be screened for HPA-1, HPA-3, and HPA-5, as well as for HPA-4, if the mother is Asian.<sup>[20]</sup> The father should also be screened. It is important to find the specific antigen to protect future pregnancies.<sup>[15]</sup> This is best done through a laboratory that has DNA testing and the ability to find rare antigens if needed.<sup>[15,16]</sup> In the early stages of neonatal thrombocytopenia, infection and bleeding disorders must be ruled out.

Degree of thrombocytopenia is mild and platelets count return spontaneously to normal within seven to ten days.

**CONCLUSION**

- Neonatal thrombocytopenia is a common problem in neonate admitted to intensive care unit.
- Prevalence of thrombocytopenia through four month is 16.2%.
- Fortunately most episodes are mild resolve spontaneously without apparent clinical squeal.
- Platelets return to normal within seven to ten days.

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