Editorial

Neonatal septicemia and Thrombocytopenia

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Abstract

Thrombocytopenia is common problem in sick newborn. It is an early marker of neonatal septicemia. Mortality is high when septicemia is associated with severe thrombocytopenia. During platelet transfusion baby's gestational age, post natal age and underlying and associated clinical conditions must be kept in mind.

Key words: thrombocytopenia, neonatal septicemia, platelet transfusion

Thrombocytopenia is one of the common hematological problem encountered in newborn admitted in NICU. The frequency of neonatal thrombocytopenia has been estimated to range from 20 to 40% of the newborns admitted to NICU in different studies [1,2]. A clinical classification of thrombocytopenia is based on the time of presentation, early (≤72 hours of life) vs. late (>72 hours of life). Most common cause of early thrombocytopenia is placental insufficiency. It is not severe and resolve mostly in one to two weeks without any treatment. In contrast, neonates who develop late-onset thrombocytopenia frequently have bacterial sepsis or necrotizing enterocolitis [3].

Late onset thrombocytopenia has a distinct natural history. Late onset thrombocytopenia is an early marker of Neonatal sepsis or Necrotizing enterocolitis once sighn and symptoms appears. Usually thrombocytopenia progresses rapidly, with a platelet nadir reached within 24–48 hours. Thrombocytopenia is often severe, with affected neonates often requiring platelet transfusions until sepsis or NEC are controlled, followed by a slow recovery in platelet numbers over the following four to five days. Bacterial sepsis causes thrombocytopenia by several mechanisms, including disseminated intravascular coagulation (DIC), endothelial damage, immune-mediated destruction, platelet aggregation due to bacterial products adhering to platelet membrane, and decreased platelet production from infected bone marrow [4, 5].

Infection should be ruled out in any ill-appearing newborn whose platelet count is less than 50 x 103/mcL (50 x 109/L) because neonates with late onset thrombocytopenia with sepsis have a 10–15% mortality [6].

Neonatal septicemia requires rapid and accurate diagnosis for better prognosis. Thrombocytopenia occurs in early course of septicemia, therefore platelet count may be considered as early predictor for the diagnosis of septicemia [7, 8, 9]

Almost all kind of neonatal infection wheather bacterial, viral, fungal or cogenital can lead to thrombocytopenia. Klebsiella species is noted to be the commonest organism. Other organism responsible include E. coli, Staph. aureus, Staph. epidermidis, Group B Streptococci, Enterococcus faecalis, Entrobacter sp., Acinetobacter sp., Pseudomonas sp., Proteus sp., Citrobacter seen in developing countries [9]. Thrombocytopenia is not only common but more severe also in gram negative septicemia [9, 10]

Platelet transfusions are frequently given to neonatal intensive care unit (NICU) patients with severe thrombocytopenia (platelets less than 50 x 10(9) L(-1)) but no study has assessed whether this is clinically appropriate [6]. Platelet count 30 x 10(9)/L might be an adequate threshold for stable non-bleeding neonates [11]. The risk of haemorrhage is difficult to assess because it is closely related to the gestational age, postnatal age of the neonate as well as the cause of the thrombocytopenia and the severity of concurrent conditions. Platalets can be transfuse as per the following guidelines [table][11].

Platelet count (× 10^9/l)	Non-bleeding neonate	Bleeding neonate	NAITP (proven or suspected)
<30	Consider transfusion in all patients	Transfuse	Transfuse (with HPA compatible platelets)
30–49	Do not transfuse if clinically stable Consider transfusion if: • <1000 g and <1 week of age • clinically unstable (e.g. fluctuating blood pressure or perfusion) • previous major bleeding (e.g. grade 3–4 IVH or pulmonary haemorrhage) • current minor bleeding (e.g. petechiae, puncture site oozing or blood stained ET secretions) • concurrent coagulopathy • requires surgery or exchange transfusion	Transfuse	Transfuse (with HPA compatible platelets if any bleeding)
50–99	Do not transfuse	Transfuse	Transfuse (with HPA compatible platelets if major bleeding present)
>99	Do not transfuse	Do not transfuse	Do not transfuse

NAITP, Neonatal alloimmune thrombocytopenia; HPA, human platelet antigen; IVH, intraventricular haemorrhage; ET, endotracheal.

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