A STUDY TO ANALYSE DECREASE IN ABSOLUTE PLATELET COUNT AS A MARKER FOR “SEVERE” RETINOPATHY OF PREMATURITY AMONG PREMATURE BABIES REQUIRING PLATELET TRANSFUSION.

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KEY WORDS: PRETERM BABIES, RETINOPATHY OF PREMATURITY, BIRTH WEIGHT, ABSOLUTE PLATELET COUNT, VASCULAR ENDOTHELIAL GROWTH FACTOR, INSULIN LIKE GROWTH FACTOR-1

ABSTRACT

INTRODUCTION:

Retinopathy of Prematurity (ROP) is one of the leading causes of preventable childhood blindness in India. In our country, ROP incidence is between 38 – 51.9 \% in low birth weight babies. The incidence of ROP increases
with decreasing Birth weight (BW) and Gestational Age (GA) and, however not in all preterm babies. So, there might be other fetal and or maternal risk factors influencing the ROP development. Recently, platelets have been reported to play an important role in angiogenic regulatory protein delivery. Premature babies developing retinopathy of prematurity in low serum platelet count, lacks the function of either delivering the optimal level or incompletely scavenges excess of “vascular endothelial growth factor A”. Premature babies admitted in NICU are under continuous monitoring including serum absolute platelet count when associated with high risk factors and with bleeding tendencies. This helps in the prediction of ROP much earlier in infants with severe deficit in absolute platelet count in NICU itself, under the supervision of neonatologist, helps in early intervention and prevention of severe vision loss and unfavourable outcome.

AIMS AND OBJECTIVES:

• To determine the association of decrease in absolute platelet count with retinopathy of prematurity among premature babies, requiring platelet transfusion.
• To analyse whether decrease in absolute platelet count is a marker for “severe” retinopathy of prematurity in those babies, requiring platelet transfusion.

**MATERIALS AND METHODS:**

The study was conducted in Department of Ophthalmology and Institute of Paediatrics, Government Rajaji Hospital, Madurai. 100 babies with birth weight less than 1750 grams and or less than 34 weeks gestation fulfilling the eligibility criteria, with decrease in serum absolute platelet count were taken up in this prospective, observational study. Various Parameters recorded were Infant’s platelet count, birth weight, gestational age at birth, postconceptional age and other risk factors such as long term exposure to oxygen, mechanical ventilation, surfactant use, Respiratory Distress Syndrome, septicaemia, multiple blood transfusions, multiple births, apnoeic episodes and intraventricular haemorrhage.

The screening examination for ROP followed in our study was based on guidelines proposed by NNF (National Neonatology Forum). Revised ICROP classification was used for categorization of ROP. Babies with decrease in serum absolute platelet count were divided into two groups: Group 1: Those babies requiring platelet transfusion. Group 2: Those babies not requiring platelet transfusion. Each group will be subdivided into - Babies with severe ROP that
needs treatment as defined by ETROP guidelines. Babies without ROP and mild ROP that didn’t meet criteria for treatment.

The serum absolute platelet count of babies were recorded at the first visit of screening and its association with severity of ROP were noted. The Statistical Package for Social Science (SPSS) 20.0 software was used for analysis. Comparisons among multiple groups were performed using one-way analysis of variance (ANOVA). Categorical variables were expressed as frequency and percentage. Independent ‘t’ test was used to find the significant difference between groups. Chi-square test and fisher’s exact test were used to find out the association between the categorical variables. P <0.05 will be considered as statistically significant.

RESULTS:

Among 100 babies included in this study, 34 babies had no ROP, 30 babies had mild ROP and 36 babies had severe ROP. The mean absolute platelet count for severe, mild, no ROP were 47,778±15574.90, 55000±17176.57 and 71412±23179.29/ micro L and it showed that there is a significant difference between absolute platelet count and retinal findings.(P=0.000). Among 36 severe ROP cases, group 1 had 24 cases and group 2 had 12 cases with the mean absolute platelet count in group 1 and 2 were 43958±14698 and
$55416\pm 14988$/micro L respectively. This shows that there is significant difference between severe ROP in both the groups and which is found to be statistically significant ($P = 0.035$). Mean difference = -11458.

**CONCLUSION:**

Statistical analysis showed that, there is an association between decrease in serum absolute platelet count in babies requiring platelet transfusion with severe retinopathy of prematurity and thus it can be used as a marker for “severe” retinopathy of prematurity. This emphasizes the ophthalmologists and neonatologists to provide more attention and special care to those babies with deficit in serum absolute platelet count requiring platelet transfusion thus minimizing the incidence of severe retinopathy of prematurity, and that helps in the prevention of sight threatening complications.