Platelets and Platelet Derived Growth Factor and Ductus Arteriosus in Preterm Neonates

Thesis

Submitted for partial fulfillment of medical degree in Pediatrics

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Abstract

Background: Platelets (PLTs) and platelet derived growth factor (PDGF) play a role in the persistence of patent ductus arteriosus (PDA) in preterm neonates and affect response to medical treatment.

The aim of the present study: was to detect the effect of PLT count, parameters and platelet derived growth factor (PDGF) on PDA in preterm neonates.

Subjects and methods: This study was performed in the NICU of Fayoum university hospital, during the period from August 2016 to October 2017. A total number of 75 preterm neonates with gestational age <33 weeks were involved in the study. They were assessed by Doppler echocardiography at the 72 hour of life and were classified into two groups (group 1 or PDA group which included 40 preterm neonates and group 2 or non PDA group which included 35 preterm neonates). For all of them, Complete blood count (CBC), C reactive protein (CRP) and serum PDGF were withdrawn.

Results: our study included a total number of 75 preterm neonates with gestational age <33 weeks who were assessed by Doppler echocardiography at the 72 hour of life and were classified into two groups (group 1 or PDA group which included 40 preterm neonates and group 2 or non PDA group which included 35 preterm neonates). Twenty six preterm neonates of group1 had hemodynamically significant PDA (HDsPDA) and received medical treatment in the form of oral course of ibuprofen. Platelet count was significantly lower among PDA group and those who failed to respond to medical treatment in comparison to others. Platelet distribution width (PDW) was significantly higher among PDA group. PLT mass index (PMI) was significantly lower among PDA group and especially those who fail to respond to medical treatment in comparison to others. PDGF was significantly lower among PDA group on day 2 in comparison to non PDA group. It also increased significantly from day 2 to day 5 in cases of PDA with spontaneous closure.

Conclusion: We deduce that PLT count, PDW, PMI and PDGF on day 2 had significant relationship with PDA. Mean platelet volume (MPV) has no significant relationship with PDA.

Key words: Platelets, patent ductus arteriosus, platelet derived growth factor.