Hematologic Indices Indicating Platelets Activity in Children with Type 1 Diabetes

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- **Platelet (PLT) hyperactivity is a key factor which contributes to cardiovascular complications in patients with type 2 diabetes mellitus even in preclinical stages of disease. To the best of our knowledge, there is limited researches in this regard among patients with type 1 diabetes. The aim of this study was to evaluate hematologic indices indicating PLT activity in children with type 1 diabetes. This was a case-control study which was conducted on 166 inpatients in 17 Shahrivar children hospital, Rasht, Iran during April 2016 to April 2017. Cases and controls were 83 children with type 1 diabetes mellitus and 83 children hospitalized for thorough assessment of short stature, respectively. Groups were matched for age and sex. Demographic characteristics and hematologic variables were assessed. The Shapiro-Wilk test was used to determine the normality of the distribution. Results for continuous and categorical variables were demonstrated as mean±SD and number and percent, respectively. Continuous variables without normal distribution were demonstrated as median (interquartile range). The χ/Fisher's exact test was used to compare categorical variables. The normal and non-normal distributed quantitative variables were respectively assessed by independent T-test or Mann-Whitney U test. P-value <0.05 noted statistical significance. The median (interquartile range) age of all children was 10 (6 to 13) years old. Thirty-five (42.2) of patients with diabetes and 35 (42.2) of control group were male individuals. There were positive correlation between age (r=0.370; P=0.001), hemoglobin (r=0.278; P=0.009), blood sugar (r=0.243; P=0.027), PLT distribution width (r=0.229; P=0.038), plateletcrit (PCT) (r=0.290; P=0.008), PLT to lymphocyte ratio (r=0.230; P=0.037) and glycosylated hemoglobin in children with diabetes. The cut-off point of PCT was 0.19 (sensitivity=87.8%, specificity=66.7%). Only increased PCT (>0.19) was related with poor metabolic control and can put the patients to the risk of future cardiovascular events. The authors recommend considering multiple PLT parameters, and not just one of them, and even designing a scoring system in terms of PLT parameters for type 1 diabetes mellitus management programs.**