

The Importance of Erythrocyte Parameters in Obese Children

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Abstract : Increasing prevalence of childhood obesity has increased the interest in early and late indicators of gaining weight. Cell blood counts may be indicators of proinflammatory states. The aim was to evaluate associations of hematological parameters, including Hematocrit (HTC), hemoglobin, blood cell counts, and their indices with the degree of obesity in pediatric population. A total of 249; 139 morbidly obese (MO), 82 healthy Normal Weight (NW) and 28 Overweight (OW) children were included into the scope of the study. WHO BMI-for age percentiles were used to form age- and sex-matched groups. Informed consent forms and the Ethics Committee approval were obtained. Anthropometric measurements were performed. Hematological parameters were determined. Statistical analyses were performed using SPSS. The degree for statistical significance was $p \leq 0.05$. Significant differences ($p=0.000$) between waist-to-hip ratios and head-to-neck ratios (hnrs) of MO and NW children were detected. A significant difference between hnrs of OW and MO children ($p=0.000$) was observed. Red cell Distribution Width (RDW) was higher in OW children than NW group ($p=0.030$). Such finding couldn't be detected between MO and NW groups. Increased RDW was prominent in OW children. The decrease in Mean Corpuscular Hemoglobin Concentration (MCHC) values in MO children was sharper than the values in OW children ($p=0.006$ vs $p=0.042$) compared to those in NW group. Statistically higher HTC levels were observed between MO-NW ($p=0.014$), but none between OW-NW. Though the cause-effect relationship between obesity and erythrocyte indices still needs further investigation, alterations in RDW, HTC, MCHC during obesity may be of significance in the early life.

Keywords : anthropometry, children, erythrocytes, obesity

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