

Relationship Between Obesity and Platelet Indices in Children

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Background: Platelet levels play a key role for determining insuline resistance by a simple test. The degree of platelet activation may be assessed by platelet indices such as platelet count, mean platelet volume (MPV) and platelet distribution width (PDW).

Objective and Hypothesis: The aim of this study is to assess platelet count, MPV, PDW as metabolic indicator in obese children with or without insuline resistans

Materials and Methods: Two hundred sixtyseven obese patients (girl 160) and 50(girl 25) controls were enrolled. Anthropometric measurements, triglyceride, total cholesterol, high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL), alanine aminotransferase, aspartate aminotransferase, uric aside, hemoglobin, platelet count, MPV, PDW and insulin resistance by homeostasis model of assessment of insulin resistance and oral glucose tolerant test were investigated. Obese patients were grouped according to the insuline resistance.

Conclusion: The relationship between platelet, MPV, PDW and obesity have been shown previously demonstrated.

Platelet indices may not to be related to the degree of obesity as we think.

Results: In obese group mean age was $11,5 \pm 3,2$ years, Body mass index: $28,6 \pm 4,8$, mean hemoglobuline level: $13 \pm 0,98$ gr/dl, mean platelet count: 328500 ± 155191 mm³, PDW : $11,5 \pm 2,0$, MPV : $9,8 \pm 0,98$, LDL: 98 ± 26 mg/dl and uric aside : $4,9 \pm 1,0$ mg/dl. Uric aside is significantly higher in obese group ($p < 0,05$) and there was no statistically significantly differences in platelet indices in two group.

Only uric aside and ALT levels were significantly different between obese and control group / and obese with insulin resistance (IR) and control group (Table 1). Platelet counts, MPV, PDW levels were not significantly different in obese, obese with IR and control groups. But MPV inveresly correlated with HOMA-IR ,platelet counts, ALT, LDL levels. MPV is positive correlated with PDW.

Table 1: comparison of clinical and laboratory parameters between Groups

	Group 1 Obez+ IR n 88	Group 2 Obez – IR n179	Group3 Control n51	P
Age (years)	12± 2,6	10,8± 3,4	11,3 ±4,2	0,01
BMI (kg/m2)	30 ±4,6	27 ±4,5	18,5± 3,4	0,00
Bmi SDS	2,6± 0,73	2,5± 1	-0,26± 1	0,00
Plt	305720± 67788	342520± 185650	312734± 88118	0,125
MPV(fl)	10±0,8	9,7± 1,2	9,8± 0,77	0,248
PDW (fl)	11,7± 1,7	11,3± 2,3	11,6 ±1,9	0,394
Hbg(gr/dl)	13 ±1,1	12,9± 0,99	12,8± 1,2	0,277
AST (u/l)	24± 11	22± 6	24 ±5,4	0,139
ALT(u/l)	28 ±23	20 ±9	18 ±9,6	0,00
TG (mg/dl)	112 ±48	99 ±48	–	0,160
			–	
LDL(mg/dl)	99 ±29	97 ±25	–	0,980
Homa-IR	5,9 ±2,1	2,4± 1	–	0,00
Uric aside(mg/dl)	5,3±1,11	4,6± 1	4 ±0,99	0,00