Relation of MPV with serum paraoxonase-1 activity and brachial artery diameter and intima media thickness in diabetic patients with respect to obesity and diabetic complications

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Objectives:

To evaluate the relation of mean platelet volume (MPV) levels with serum paraoxonase-1 activity and brachial artery diameter and intima media thickness in diabetic patients with respect to obesity and diabetic complications

Methods:

A total of 201 diabetic patients grouped with respect to obesity obese (n=89) and non-obese (n=112) and diabetic complications with (n=50) or without (n=150) microvascular complications and with (n=91) or without (n=108) macrovascular complications groups were included. Data on demographic and lifestyle characteristics of patients, anthropometric measurements, diabetes related microvascular and macrovascular complications, serum levels for MPV, brachial artery diameter and intima media thickness (IMT) and serum paraoxonase and arylesterase activities were recorded. Correlation of MPV values to paraoxonase and arylesterase activities as well as to brachial artery diameter and IMT was evaluated in study groups.

Results:

Mean(SD) paraoxonase and arylesterase values were 119.8 ±37.5 U/L and 149.0± 39.9 U/L, respectively in the overall population, with no significant difference with respect to obesity and macrovascular diabetic complications, whereas significantly lower values for paraoxonase 107.5± 30.7 vs. 123.9± 38.8 U/L, (p=0.007) and arylesterase 132.1 ±30.2 vs. 154. ±41.2 U/L (p=0.001) were noted in patients with than without diabetic microvascular complications. Mean(SD) MPV values were 9.10± 0.87 fL in the overall population, with no significant difference with respect to obesity and diabetic complications. No significant correlation of MPV values to paraoxonase and arylesterase activities and to brachial artery diameter and IMT was noted in the overall study population as well as in study groups

Conclusions:

In conclusion, our findings revealed a significant decrease I PON-1 activity in diabetic patients with microvascular rather than macrovascular complications, whereas regardless of obesity and diabetic complications, no increase in thrombogenic activity and no relation of thrombogenic activity with PON-1 activity and brachial artery diameter and IMK.

References: