Metabolic Syndrome: inflammation and hemorheology

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AIM: Metabolic syndrome (MS) is a frequent condition in western societies, on which it imposes a heavy burden of mortality and disability through an acceleration of atherosclerosis. In MS a low-grade inflammation and a state of chronic oxidative stress can be identified. In recent years matrix metalloproteases, including gelatinases, have emerged as markers of atherosclerosis progression. Our aim was to study the role of hemorheological abnormalities in MS and their relation with other biochemical alterations.

METHODS: In groups of MS patients we evaluated the blood rheology pattern, some markers of oxidative stress and the plasma levels of gelatinases A and B and their tissue inhibitors.

RESULTS: We observed an increase in blood and plasma viscosity and a significant association between the rheological alterations and insulin resistance. We also demonstrated an enhanced lipid and protein oxidation, irrespective of whether MS patients were diabetic or not. We found high concentrations of gelatinases and their inhibitors, with gelatinase A prevailing over its inhibitor. The plasma levels of gelatinases and their inhibitors were significantly influenced by diabetes mellitus.

CONCLUSIONS: Plenty of biochemical alterations are demonstrable in MS, but the assessment of their clinical and prognostic relevance needs further investigation. A better knowledge of the overall pathophysiological picture could provide a reliable guide for clinical management of MS patients.