

Hyperferritinemia And Inflammation In Metabolic Syndrome Patients Diagnosed With Or Without Diabetes

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Introduction: The metabolic syndrome (MetS) is a global public-health problem worldwide with the increasing prevalence. MetS is characterized by a cluster of risk factors, including insulin resistance (IR), dyslipidemia, central adiposity and elevated blood pressure that increase risk for cardiovascular disease, type 2 diabetes (T2DM) and all cause mortality (1,2,3). Inflammation is involved in insulin resistance, adiposity and other aspects of metabolic syndrome. Ferritin, acute phase reactant, has also been related to insulin resistance, MetS and diabetes. However, the association between increased serum ferritin levels and the metabolic syndrome still remains controversial (4,5). This study aimed at assessing whether ferritin and proinflammatory cytokine IFN- γ are associated with MetS patients with or without DM.

Material and Method: A total of 50 MetS patients and 30 controls without MetS were included in the analysis. The study group of MetS patients were divided into two subgroups according to have DM: the first MetS group who had DM included 26 subjects with the mean aged 52.73 ± 1.4 years and mean BMI 36.7 ± 1.5 , the second group who had no DM included 24 subjects with the mean aged 34.7 ± 2.1 years and mean BMI 32 ± 1.1 . The control group who had no DM included 30 subjects with the mean age 28.6 ± 1.6 years and mean BMI 29.6 ± 0.8 . Serum ferritin and IFN- γ levels were determined by elisa kits. In addition, demographic data, body mass index, anthropometric measurements and biochemical parameters were evaluated.

Results: The levels of ferritin and IFN- γ of total patients were found significantly higher compared to controls ($p < 0.05$). Significant differences were observed among serum insulin, glucose, total cholesterol, HDL-cholesterol, triglycerides levels, BMI, systolic and diastolic blood pressure, HOMA-IR, waist circumference in total patients compared to controls ($p < 0.05$).

There was no significant difference between subgroups according to ferritin and IFN- γ levels. The levels of ferritin of patients subgroups were found significantly higher compared to controls. Compared to controls, IFN- γ levels were found significantly higher in second group ($p < 0.05$). Significant differences were determined among serum glucose, total cholesterol, **LDL-cholesterol**, waist circumference, HOMA-IR and BMI between subgroups ($p < 0.05$).

Conclusions: Our findings suggested that hyperferritinemia and inflammation may occur in MetS patients. Additional studies in larger groups are needed to confirm association of these parameters with the MetS.

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