

Possible Association of Serum Inflammatory Cytokines and Ferritin Levels with Metabolic Syndrome

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Abstract

The metabolic syndrome (MetS) is a common and complex disorder combining obesity, hyperglycemia, dyslipidemia, hypertension, and insulin resistance. It is a major and increasing public-health and clinical challenge worldwide. To date, the mechanisms linking components underlying the MetS remain unclear. However, it has been suggested that inflammation plays an important role in the pathogenesis of MetS. At the present study, we aimed to evaluate serum ferritin and inflammatory cytokine levels and their correlations between individuals with MetS and without MetS. The study included 75 individuals diagnosed with MetS (mean age 40.4±13.2 years and mean BMI was 34.5±6.7 kg/m²) and 75 controls without MetS (mean age 28.1±8.8 years and mean BMI was 29.8±5.0 kg/m²). Serum IL-1 α , IL-10 and IFN- γ as inflammatory markers and ferritin levels were measured by using ELISA kits. Furthermore, demographic data, body mass index, anthropometric measurements and biochemical parameters were evaluated. It was found that serum ferritin, IL-1 α and IFN- γ levels were statistically higher in MetS group compared to controls (p<0.05). However, there was no statistically significant difference between groups according to IL-10 levels. It was found that there is a positive significant correlation between serum triglycerides and IFN- γ levels in MetS group (p<0.05). BMI and age were found to be statistically higher in MetS group compared to controls (p<0.05). The result of this study showed that increased age and BMI were found to be an important risk factor for the development of MetS and increased serum ferritin, IL-1 α and IFN- γ levels were associated with MetS. These findings suggest that ferritin, IL-1 α and IFN- γ levels may help to identify the presence of MetS. Further studies in larger groups are required to unravel the role and association of the emerging biomarkers with the MetS and their implication in therapeutic intervention.

Key words: IL-1 α , IFN- γ , IL-10, cytokine, ferritin, metabolic syndrome.