World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:17, No:10, 2023

Identification of Some Factors Influencing Serum Uric Acid Concentration in Individuals With Metabolic Syndrome

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Abstract : Background: Elevated serum uric acid (SUA) levels are observed in metabolic and cardiovascular conditions as an early predictor of metabolic syndrome (MS). Hyperuricemia, characterised by high uric acid levels in serum, increases the risk of developing MS by 1.6 times. Being overweight and obese significantly contributes to developing MS and cardiovascular disorders. In Mongolia, the prevalence of overweight and obesity is reaching 48.8% among individuals aged 15 to 49 years, indicating a potential surge in the incidence of MS, cardiovascular disorders, diabetes mellitus, and gout.Objective: This study aimed to determine the SUA levels in men diagnosed with MS and investigate the factors influencing these levels.Methods: A total of 119 men aged 30-60, who underwent preventive examinations and resided in Ulaanbaatar city, were included in the study. The criteria established by the International Diabetes Federation (IDF), American Heart Association (AHA), and the National Heart, Lung, and Blood Institute (NHLBI) were employed to define metabolic syndrome. Hyperuricemia was defined as SUA levels ≥7 mg/dL. Dietary intake was evaluated through the 24-hour recall method.Results: The study revealed that the prevalence of MS among the participants was 42.9% (n=51), with hyperuricemia observed in 16.8% (n=20) of the individuals. Among men diagnosed with MS, 21.3% (n=10) exhibited hyperuricemia. The mean SUA levels were as follows: 4.7±0.8 mg/dL in the healthy group, 5.9±1.1 mg/dL in men without MS but presenting central obesity, and 6.2±1.3 mg/dL in men with MS. After adjusting for age and body mass index (BMI), a positive correlation was observed between SUA levels and triglycerides (β=0.93) as well as lipid accumulation product (LAP) (β=0.92) in men with MS. In the central obesity group, SUA levels exhibited a positive correlation with triglycerides (β=0.91), visceral adiposity index (VAI) (β=0.73), LAP (β=0.92), and cardiometabolic index (CMI) (β=0.69). The risk of hyperuricemia increased by 3.29 times with elevated triglycerides and 3.53 times with an increased LAP.Conclusion: The findings indicate that abdominal fat accumulation, as indicated by elevated triglyceride levels and LAP, is associated with increased SUA levels in men with MS. However, no significant relationship was observed between SUA levels and dietary intake.

Keywords : central obesity, obesity, triglycerides, hyperuricemia
Conference Title : ICOMD 2023 : International Conference on Obesity and Metabolic Disorders
Conference Location : New York, United States
Conference Dates : October 09-10, 2023