

8th Global

Cardiologists & Echocardiography Annual Meeting

July 18-20, 2016 Berlin, Germany

Serum total osteocalcin level as a vascular marker in elderly patients with metabolic syndrome

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Metabolic syndrome (MetS) is a major public-health problem and clinical challenge worldwide. Several epidemiological studies have confirmed the increased risk of CVD in individuals with MetS. Osteocalcin (OCN) is a bone-derived, non-collagenous protein that recently recognized as hormone regulating energy metabolism. Importantly, osteocalcin expression has been described in calcifying vascular smooth muscle cells. We aimed in the present study to analyze the correlation between serum levels of OCN and vascular calcification in elderly persons with metabolic syndrome. 74 elderly males, 65 years and older were included in the present study, divided into two groups; group I; 40 patients satisfied at least three criteria of the metabolic syndrome (MetS) according to NCEP-ATP III definition, and group II; 34 age-matched healthy males serving as a control group. BMI was calculated, blood samples were taken for lipid profile, and total OCN levels using ELISA kits. Carotid Doppler B mode ultrasonography was done for all participants. Patients with MetS exhibited significantly higher BMIs, waist circumference, fasting blood sugar, Triglycerides, blood pressure, total cholesterol, and lower HDL-ch, compared to the controls subjects. Patients with MetS had significantly lower levels of total Osteocalcin than control subjects. Also, patients with MetS had significantly higher IMT and higher number of carotid plaques than the control subjects. Total OCN was significantly negatively correlated with parameters of carotid atherosclerosis. It is also negatively correlated with dyslipidemic parameters. Its correlation with components of MetS did not reach a statistical significance. We concluded that serum osteocalcin levels were significantly associated with carotid atherosclerosis in patients with metabolic syndrome. This may reflect the role of osteocalcin as a circulating endocrine factor which regulates glucose metabolism and thereby cardiovascular risk in patients with metabolic syndrome. Prospective studies are needed to assess the time course and relevance of serum osteocalcin in the development of atherosclerosis in patients with metabolic syndrome.

Biography

Nany Hassan Abu Al-Makarim El Gayar is an Assistant Professor of Internal Medicine, Geriatrics Department at Alexandria University, Egypt. He has done MS in Rheumatology and MD in Geriatrics. He has published 10 papers in reputed journals.

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