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Fractalkine as an inflammatory marker in obese subjects

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Abstract

Background: Fractalkine (CX3CL1) is known to convey its signals through a single G-protein coupled receptor (CX3CR1). It is characterized as a structurally unique chemokine with both membrane-bound and soluble forms. fractalkine expression has been detected in activated or stressed endothelial, smooth muscle, skeletal muscle, macrophages, neurons, hepatocytes and adipocytes. Inflammation up regulates fractalkine particularly in adipose tissue of obese individuals.

Aim: This study was designed to assess fractalkine level in obese subjects and its relation with some clinical and laboratory findings. It compares basal plasma fractalkine and hs-CRP in obese patients (with and without metabolic syndrome) and lean healthy controls.

Subjects and Methods: The study was carried out on 140 subjects; 70 controls and 70 obese subjects (38 with metabolic syndrome and 32 without metabolic syndrome). All were subjected to full history taking thorough clinical examination, fasting and post prandial blood glucose, HbA1c, lipid profile, fractalkine level and hs-CRP.

Results: Serum fractalkine level was significantly raised in obese subjects compared to lean controls (being higher in those with metabolic syndrome). There was a significant positive correlation between serum fractalkine level and BMI, WC, WHR, fasting and post prandial blood glucose, HBA1c, total cholesterol, triglycerides and LDL and it was inversely correlated with HDL while there was no significant correlation between serum fractalkine level and hs-CRP.

Conclusions: Fractalkine, like other known adipocytederived chemokine's was increased in obese individuals and associated mainly with metabolic syndrome. This is a step in the way to understand and explain the exact pathogenesis of metabolic syndrome as well as obesity linked complications.

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