Oliinyk M.O.

RELATIONSHIP BETWEEN TUMOR NECROSIS FACTOR-A AND CARBOHYDRATE METABOLISM IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND OSTEOARTHRITIS

Kharkov National Medical University, Department of Internal Medicine № 3, Kharkov, Ukraine

Tumor necrosis factor-α (TNF-α) takes part in regulation of carbohydrate metabolism, induces insulin resistance in adipose tissue and muscles, depresses genes that take part in process of assimilation and deposition of glucose and activates degenerative processes in the joint.

The aim of the present study was to investigate relationship between concentration in plasma tumor necrosis factor-α and parameters of carbohydrate metabolism in patients with type 2 diabetes mellitus(DM) in combination with osteoarthritis (OA) in patients with normal body weight and concomitant obesity.

Materials and methods. The study was performed on 65 patients (29 males, 36 females aged 56.1 ± 3,2) with combination type 2 DM and OA in endocrinology and rheumatology departments of Regional Hospital of Kharkov. All patients were divided into 2 groups: group 1 (n = 30) - with combined course of type 2 DM and OA with normal body weight, group 2 (n = 35) - with combined course of type 2 DM and OA with obesity (BMI≥ 30 kg/m2). The survey plan included: anthropometric data, indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR). The level of HbA1C was <7.5% in all patients. The level of TNF-α was determined by ELISA. All patients were made X-ray examination of knees.

Results. Significant correlation between TNF-α and insulin resistance was determined ($r=0,35; p<0,05$) in 1^{st} group with normal BMI. More significant correlation between TNF-α and glucose ($r=0,43; p<0,05$), HbA1C ($r=0,54; p<0,05$), insulin resistance ($r=0,73; p<0,05$) and HOMA-IR ($r=0,62; p<0,05$) was determined in 2^{nd} group with comorbid pathology and obesity . Also the degree X-ray changes (by Kellgren) were more in 2^{nd} group in compare with the 1^{st} group.

Conclusion. Significant correlation between TNF-α and glucose, HbA1, insulin resistance and HOMA-IR in group of patients with comorbid pathology and obesity means, that obesity is important factor of pathogenesis relationship immune and metabolic processes in patients with type 2 DM and OA.