

# Fat Mass and Obesity-Associated Gene Expression and Disease Severity in Type 2 Diabetes Mellitus

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## BACKGROUND

Obesity and visceral adiposity are major risk factors for type 2 diabetes mellitus (T2DM). The fat mass and obesity-associated (FTO) gene is associated with increased risk of obesity and T2DM. The aim of this work was to study the association between FTO gene expression and serum FTO protein level with disease severity in T2DM patients.

## PATIENTS AND METHODS:

One hundred T2DM patients were divided into two equal groups according to diabetes control and complications and fifty healthy controls were included in this study. FTO messenger ribonucleic acid (mRNA) expression level was analyzed by Real time polymerase chain reaction (PCR) technique and serum level of FTO protein was measured by ELISA.

## RESULTS:

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FTO gene expression and FTO protein levels were increased in the two T2DM groups compared to the control group with significant further increases in patients with severe disease. FTO gene expression and FTO protein levels were positively correlated with obesity, insulin resistance and blood glucose indices as well as the presence of diabetic complications. Regression analyses showed that FTO gene expression and FTO protein levels were risk factors for T2DM severity.

## CONCLUSIONS:

Increased FTO gene expression and its serum protein levels are associated with increased T2DM severity.

## KEYWORDS:

Type2diabetes mellitus, Obesity, Insulin resistance, Fat-mass and obesity-associated gene.