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Role of Visfatin in the Pathogenesis of Gestational Diabetes Mellitus

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Abstract

Background The recently discovered adipocytokine visfatin has insulin-like properties. It lowers blood glucose and improves insulin sensitivity; however, clinical data on visfatin are limited.

Objective To evaluate the role of visfatin in GDM (gestational diabetes mellitus), we determined visfatin levels in women with GDM and healthy pregnant women.

Methods A total of 60 women were evaluated: 30 women with gestational diabetes mellitus and 30 healthy pregnant women to serve as control subjects. Serum visfatin concentrations were analyzed using an enzyme-linked immunosorbent assay the study was done in Al-Yarmouk Teaching Hospital during the period from November 2010 to March 2011.

Results Serum visfatin concentrations were significantly lower in the gestational diabetes mellitus group (0.27±0.1 ng/ml) than in the healthy control group (1.37±0.25ng/ml) (P=0.0001).

Conclusions Our results show that there are decreased concentrations of serum visfatin in gestational diabetes mellitus subjects and this may indicate that visfatin plays a role in the pathogenesis of gestational diabetes mellitus .However; further experiments are needed to clarify this role.

Key Words Visfatin, Gestational Diabetes Mellitus

Introduction

Gestational Diabetes mellitus is defined as carbohydrate intolerance that begins or is first recognized during pregnancy [(1)]. It occurs in 3% to 5% of pregnant women and is associated with adverse effects for both mother and fetus [(1)]. Gestational diabetes mellitus share a number of epidemiologic, physiological, and genetic characteristics with diabetes mellitus type two and seems to be a significant risk factor for the development of diabetes mellitus type 2 in later life [(2)].

A variety of polypeptides secreted from adipose tissue, such as TNF-α (tumour necrosis factor-α) [(3)], resistin [(4)] and leptin [(5)], might play an important role in metabolic homoeostasis and the development of Type II diabetes, dyslipidaemia and artherosclerosis [(6)]. Recently reported, the novel adipocytokine visfatin (52 kDa cytokine with 491amino acids), which was previously known as PBEF (pre-B-cell colony-enhancing factor). It was originally isolated as a secreted factor that synergizes with interlukine-7 and stem cell factor to promote the growth of B-cell precursors [(7)].

Visfatin is a peptide that is predominantly expressed in, and secreted from, visral adipose tissue [(8,9)] and exerts insulin-mimicking effects through activation of an insulin receptor, although in a manner distinct from that of insulin [(9)]. The role of visfatin in human physiology and pathophysiology remains to be elucidated, while, according to some authors, plasma concentrations of visfatin are elevated in