Serum Visfatin as a Novel Marker of Type 2 Diabetes in Obese Patients

Protocol of Thesis

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List of Abbreviations

ADA	American Diabetes Association
BMI	Body mass index
CE	Cholesterol esterase
DM	Diabetes mellitus
DNO	Diabetic non obese
DO	Diabetic obese
EIA	Enzyme immunoassay
ELISA	Enzyme linked immunosorbant assay
FBG	Fasting blood glucose
FBI	Fasting blood insulin
FPG	Fasting plasma glucose
GDM	Gestational diabetes mellitus
H^2	Height Square
HbA1C	Hemoglobin A1C (Glycated hemoglobin)
HDL-C	High density lipoprotein cholesterol
HOMA-IR	Homeostatic model assessment of insulin resistance
HS	Highly significant
IDDM	Insulin dependent diabetes mellitus
IFG	Impaired fasting glucose
IGT	Impaired glucose tolerance
IR	Insulin resistance
LDL-C	Low density lipoprotein cholesterol
NAMPT	Nicotinamide 5- Phosphorybosil-1 pyrophosphate Transferase

NAPRTase	Nicotinic acid phosphoribosyl transferase
NDNO	Non diabetic non obese
NDO	Non diabetic obese
NIDDM	Non insulin dependent diabetes mellitus
NS	Non significant
PBEF	Pre-B Cell Enhancing Factor
PCR	Polymerase chain reaction
RIA	Radio immunoassay
RT-PCR	Reverse Transcriptase Polymerase Chain Reaction
S	Significant
SD	Standard deviation
TC	Total cholesterol
TG	Triglycerides
TNF-α	Tumour Necrosis Factor-α
Type 1 DM	Type 1 diabetes mellitus
Type 2 DM	Type 2 diabetes mellitus
VLDL	Very low density lipoprotein
W	Weight
WAT	White adipose tissue
WC	Waist circumference
WHO	World Health Organization
WHR	Waist Hip Ratio

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INTRODUCTION

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The escalating international epidemic of obesity is now the most contributor to ill health ***(Caballero, 2005).*** It is a major risk factor for cardiovascular diseases, pulmonary diseases, metabolic diseases, osteoarticular diseases, different forms of cancer and serious psychiatric illness ***(Samanic et al., 2006).***

Obesity is a rapidly growing disorder in industrialized and developing countries, that when weight is gained, hyperplasia and hypertrophy of adipose tissue are found ***(Seeger et al., 2007)***.

The metabolic complications of obesity consist of dyslipidemia, hypertension, premature heart disease, insulin resistance, that often ends in β cell failure, impaired glucose tolerance and type 2 diabetes ***(Parati et al., 2007).***

Type 2 diabetes is a complex disorder that affects between 6% and 20% of the population in western industrialized societies ***(Singh et al., 2004).***

The epidemic of type 2 diabetes continues to grow worldwide that 171 million individuals are currently affected and the number of cases may double by 2030 ***(Wild et al., 2004).*** The rising numbers of people with diabetes, caused by an increasing prevalence of obesity, may soon start to increase cardiovascular disease mortality ***(Sicree et al., 2006).***

Adipose tissue represents an active endocrine organ that releases a large number of bioactive mediators (adipokines) that signal to organs of metabolic importance including brain, liver, skeletal muscles and the immune system thereby modulating hemostasis, blood pressure, lipid and glucose metabolism, inflammation and atherosclerosis. These adipokines include adiponectin, leptin, omentin, resistin, retinol binding protein, tumor necrosis factor-α, interleukin-6, vaspin, chemerin and visfatin ***(Rabe et al., 2008).***

Visfatin was originally identified as a 52kd protein that is primary expressed in liver, muscles and bone marrow as a growth factor for B lymphocytes precursor(thus its alternative name, Pre-B Colony Enhancing Factor) ***(Fukuhara et al., 2005).***

Circulating visfatin levels are closely correlated with WAT(white adipose tissue) accumulation, and its mRNA levels increase in the course of adipocyte differentiation ***(Jia et al ., 2004).***

It has been reported that visfatin mimics actions of insulin by activating the insulin signal transduction pathway through binding to the same receptors. Therefore , it is implicated in the development of obesity-associated insulin resistance and diabetes mellitus ***(Fukuhara et al ., 2005).***

Recently visfatin concentrations are acutely regulated by glucose and insulin and elevated in patients with insulin resistance, obesity and diabetes ***(Dominik et al., 2007).***

AIM OF THE WORK

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The aim of the present study was to evaluate serum visfatin as a marker for type 2 diabetes in obese patients.

Review Of Literature

Obesity