

The Relationship between Omentin-1, Fibrinogen and Glycemic Control in Diabetic Foot Ulceration in Babylon Province

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Abstract

Diabetes is a prolonged disease that can product in both lengthy term and little term complications. • Lengthy term complications are affected by years of great blood sugar intensities in the blood vessels. • Danger of complications rise the longer blood sugar heights are not below control. Several diabetes complications don't perform until after several years of having the disease. Aim of the learning To discovery out the Relation among Omentin-1 ,Fibrinogen and HbA1c In patients by DFU . study sixty person with DFU and sixty person actually healthy were reserved as a control group.

Serum Omentin-1 ,fibrinogen determind by enzyme- linked immunosorbent assay (ELISA) . COBAS HbA1c kit was resolute by colorimetric technique .Serum stages of omentin-1 was significantly deference in DFU group related by control and fibrinogen was significantly deference in DFU group compared with control group . A significant negative relationship among Omentin-1 then HbA1c and significant positive correlation between fibrinogen and HbA1c .

Key words: Diabetic foot ulcer, HbA1c.

Introduction

Diabetic foot unique of the greatest significant and disconcerting complications of diabetes, demarcated as a foot natural by ulceration that is interconnected with neuropathy and peripheral arterial disease of the lower member in diabetes patient . The vascular complications of (T2DM) can be affected by any microangiopathy or macroangiopathy ⁽¹⁾. The macroangiopathy in T2DM is a form of faster atherosclerosis disturbing carotid, coronary in addition to peripheral arteries. This occurrence inside the big vessels rises the incidence in addition to occurrence of diabetic foot ulcer in diabetic patients ⁽²⁾ . To this day, DFU is the leading reason of lower end amputation in diabetic patients, in addition known to give a poor prognosis to the patients ⁽³⁾.

Omentin-1 (intelectin-1) (34 kDa) is a newly recognized fat deposition definite adipokine. It is identified protein consists of 313 aminoacids . It is considered to be very much and selectively stated in visceral omental

adipose tissue (AT) ⁽⁴⁾. Omentin-1 uttered in the heart (epicardial fat), ovary lungs and placenta, however in these organs, the action of omentin-1 have nonetheless to be recognized. Omentin was firstly called in intestinal Paneth cells and has been associated in the gut defensive mechanisms in contradiction of pathogenic bacteria . Omentin -1 is the main circulating form of omentin ⁽⁵⁾.

Serum fibrinogen is an inflammatory indicator that has significant part in the pathogenesis of inflammation, thrombogenesis, atherosclerosis and increase of vascular complications in patients T2DM⁽⁶⁾ . It has been established that patients with DFU have upper fibrinogen stages than those without some ulcers ⁽⁷⁾. that discovery in patients with diabetic is an improved level of fibrinogen clearance, with smaller fibrinogen circulating half-life ⁽⁸⁾⁽⁹⁾ .

Previous studie found decreased serum levels of Omentin-1 in DFU ⁽¹⁰⁾ . increased serum levels of Fibrinogen and HbA1c in DFU ⁽¹¹⁾ . In this study, the

association among Omentin-1, Fibrinogen then HbA1c was study .

Patients and Methods

Complete history was engaged from completely patient which comprise: residence, age, smoking , surgical, drug , family and medical history and No drugs were agreed to patients may affect with the measured factors. Sixty actually healthy person (who are sex-matched and age patients group designated as a control group . control person have no account of chronic disease such as not smoking and rheumatoid arthritis .The statistical study made by using SPSS version 18 for windows. Data were articulated as Mean ± SD. routine supply variables was measured by Student’s F-test and Pearson association analysis that have been used to determine important variance among two groups.

Results and Discussion

The results in(table- 1) reveals a greatly important decrease in sera level of Omentin-1 in patients by DFU group cases associated with control group(P<0.01) and highly significant increase in the sera near Fibrinogen and HbA1c in patients with DFU group cases associated with control group(P<0.01) .

Omentin-1 is an anti-inflammatory adipokine, instead, it plays a significant part in controlling insulin sensitivity through endocrine and paracrine factor which controls the glucose metabolism and insulin sensitivity in the controlled level of omentin-1 in adipose tissue, and also to increasing of the insulin indicator transduction

through stimulation of protein kinase (AKT/protein kinase B). Therefore, distribution of fat in the body concerning the visceral and fat depot in subcutaneous it was enhanced (12) .

Omentin-1 accelerated insulin to control glucose transport and metabolism at remote sites like muscle, liver and subcutaneous fat .Secreted omentin-1 in blood human leads to an accelerated insulin sensitivity (13).

Fibrinogen is protein, production could be stimulated by inflammation and interleukin-6 . inflammation and augmented IL-6 appearance in DFU might be a stimulator for fibrinogen by increasing transcription of three genes coding peptide of fibrinogen . hyperglucagonemia in type 2 diabetes influence add the improved production of plasma fibrinogen (14) .

Fibrin, roles primarily in early step of wound healing. It systems a impermanent clot matrix toward end bleeding and deliver a scaffold care cell migration and proliferation, assisting transition from inflammation repair . As wounds close, the fibrin matrix constricted by fibroblasts interchanged by mature collagen fibrils through the matrix alteration process(15) . The relationship among glycemic control and fibrinogen levels down to (1) glycosylate fibrinogen is less predisposed to plasminm degradation (2) insulin deficiency in diabetic’s results in variance protein synthesis (16).

From the effects , can arrange a high significant negative correlation among Omentin-1 , HbA1c but a high significant positive link between Fibrinogen and HbA1c in DFU .

Table (1) parmeters of DFU and control Groups.

Parameter	DFU n= 60	Control n=60	P values
Omentin-1 ng/ml	(127.39±57.95)	(487.5±83.50)	P <0.01
Fibrinogen mg/ml	(11.44±1.67)	(3.78±1.31)	P <0.01
HbA1c	6.62 ± 0.514	4.9± 0.9	P <0.01

Table (2): Pearson's relationship between Omentin-1, fibrinogen HbA1c stages of in different groups (n= 120)

parameres	DFU group		control	
	r	p	r	p
Omentin-1 vs HbA1c	-0.52	0.05	-0.54	0.05
Fibrinogen vs HbA1c	0.825	0.01	0.181	0.05

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

Conflict of Interest: None

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