STUDY OF THE RELATIONSHIP BETWEEN ALLERGIC MARKERS AND URINARY ALBUMIN EXCRETION IN ALLERGIC ASTHMATIC PATIENTS WITH TYPE II DIABETES

Thesis

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By

Mohammed Elsayed Nassar
M.B., B.Ch. (Ain Shams University)

Under Supervision Of

Prof. Dr. Fawzia Hassan Abo Aly
Professor of internal medicine, allergy and clinical immunology
Faculty of medicine-Ain shams university

Dr. Nermine Abd Elnour Melek
Lecturer of internal medicine, allergy and clinical immunology
Faculty of medicine-Ain shams university

Dr. Rasha Youssef Shahin
Lecturer of internal medicine, allergy and clinical immunology
Faculty of medicine-Ain shams university

Faculty of Medicine
Ain Shams University
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List of Contents

Title	Page No.
List of Abbreviations	**ii**
List of Tables	**v**
List of Figures	**vii**
Introduction	**1**
Aim of the work	**3**
Review of Literature	
Chapter (1): Bronchial Asthma	**4**
Chapter (2): Diabetes Mellitus	**56**
Chapter (3): diabetic nephropathy	**93**
Chapter (4): Inflamatory Marker's in Asthmatic Diabetic Patients	**119**
Patients and Methods	**124**
Results	**133**
Discussion	**165**
Summary	**159**
Conclusions and Recommendations	**163**
References	**164**
Arabic Summary	**--**

List of Abbreviations

2hrs PP G..... : Two Hour Post Prandial Glucose.

3- DG..... : 3- Deoxyglycosone.

ADA ..... : American Diabetes Association.

AGEs..... : Advanced Glycation End Products.

ALT..... : Alanin Amino Transferase.

AMA ..... : Anti-Mitochondrial Antibodies.

ANA ..... : Anti-Nuclear Antibodies.

Anti-LKM1..... : Anti-liver/kidney microsomal.

AP..... : Alkaline Phosphatase.

ASMA..... : Anti-Smooth Muscle Antibodies.

AST ..... : Aspartate Amino Transferase.

B A..... : Bronchial asthma.

BMI..... : Body Mass Index.

BUN ..... : Blood Urea Nitrogen.

CVA ..... : Cerebrovascular Accident.

CVD ..... : Cardiovascular Diseases.

CVS..... : Cardiovascular System.

DAG..... : DiacylGlycerol.

DCCT ..... : Diabetes Control and Complication Trial.

DKA..... : Diabetic Ketoacidosis.

DM ..... : Diabetes Mellitus.

DN ..... : Diabetic Neuropathy.

DR ..... : Diabetic Retinopathy.

EF ..... : Ejection Fraction.

List of Abbreviations (Cont...)

ELISA..... : Enzyme Linked Immunosorbent Assay.

FBS..... : Fasting Blood Sugar.

FHF..... : Fulminant Hepatic Failure.

GI..... : Gastrointestinal.

GTP-1..... : Glucose Dependant Insulintropic Polypeptide-1.

HbA1C..... : Hemoglobin A 1c.

HBsAg..... : Hepatitis B surface antigen.

HCC..... : Hepatocellular carcinoma.

HCVAb..... : Hepatitis C Virus Antibody.

HDL..... : High Density Lipoproteins.

HPLC..... : High performance liquid chromatograph

HLA..... : Human Leucocyte Antigen.

HNF..... : Hepatocyte Nuclear Factor.

IDF..... : International Diabetes Federation.

IFG..... : Impaired Fasting Glucose.

IGF..... : Insulin like Growth Factor.

IGT..... : Impaired gGucose Tolerance.

IL- 6..... : Interleukin- 6.

INR..... : International Normalized Ratio.

IPF-1..... : Insulin Promoter Factor-1.

IR..... : Insulin Resistance.

IRMA..... : Intraretinal Microvascular Abnormalities.

LDL..... : Low Density Lipoproteins.

LFTs..... : Liver Function Tests.

Mes..... : Metabolic Syndrome.

List of Abbreviations (Cont...)

NCS..... : Nerve Conduction Study.

NCV..... : Nerve Conduction Velocity.

NO..... : Nitric Oxide.

NPDR..... : Non- Proliferative Diabetic Retinopathy.

NVD..... : Neovascular Disease.

NVE..... : Neovascular Elsewhere.

OGTT..... : Oral Glucose Tolerance Test..

PAI-1..... : Plasminogen Activator Inhibitor- 1.

PDGF..... : Platelet Derived Growth Factor.

PDR..... : Proliferative Diabetic Retinopathy.

PKC..... : Protein Kinase C.

PN..... : Peripheral Neuropathy.

PSC..... : Primary Sclerosing Cholangitis.

RAS..... : Rennin- Angiotensin- Aldosterone system.

SD..... : Standard Deviation.

SMR..... : Standard Normalized Ratio.

TGF-β..... : Transforming Growth Factor- beta..

TNF-α..... : Tumour Necrosis Factor- Alpha.

VEGF..... : Vascular Endothelial Growth Factor.

WHO..... : World Health Organization.

List of Tables of (Review)

Table No.	Title	Page No.
Table (1):	Examples of Agents Causing Asthma in Selected Occupations	16
Table (2):	CD14-endotoxin interaction based on CD14 SNP C-159T	18
Table (3):	Clinical classification of asthma severity	48
Table (4):	Levels of asthma control	49
Table (5):	Severity of asthma exacerbations	51
Table (6):	Mechanisms of proteinuria in diabetic kidney disease	102
Table (7):	Diabetic nephropathy stages: cutoff values of urine albumin for diagnosis and main clinical characteristics	111

List of Tables of (Results)

Table No.	Title	Page No.
Table (1):	Age distribution and mean age difference among patient groups.	134
Table (2):	Sex distribution among patient groups	135
Table (3):	Diabetic history among patient groups.	136
Table (4):	Hypertension history among patient groups	137
Table (5):	Cardiac history among patient groups.	138
Table (6):	Mean glycated Hgb level among patient groups.	139
Table (7):	Mean Creatinine level among patient groups.	140
Table (8):	Mean cholesterol level among patient groups.	141
Table (9):	Mean triglycerides level among patient groups	142
Table (10):	Mean WBC's count among patient groups.	143
Table (11):	Mean esinophils count among patient groups.	144
Table (12):	Serum total IgE level.	145
Table (13):	Mean Albumin / Creatinine ratio among patient groups	146
Table (14)	Pulmonary functions among patient groups.	147
Table (15):	Correlation between esinophils count and other study parameters	148
Table (16):	Correlation between serum IgE level and other study parameters.	150

List of Figures of (Review)

Fig. No.	Title	Page No.
Figure (1):	Prevalence of asthma in urban and rural areas in Egypt.	6
Figure (2):	Cytokine balance.	15
Figure (3):	Role of natural killer cells in pathogenesis of asthma.	27
Figure (4):	Role of mast cells in asthma pathogenesis.	29
Figure (5):	Role of eosinophils in asthma.	30
Figure (6):	Role of neutrophils in the early response phase.	31
Figure (7):	Role of neutrophils in the late response phase.	32
Figure (8):	Role of dendritic cells in asthma	33
Figure (9):	IgE mediated response in asthma.	44
Figure (10):	Showing a fundus image of normal retina and diabetic retinopathy.	86
Figure (11):	Showing a fundus images of advanced NPRD.	88
Figure (12):	Showing a fundus images of moderate. NPDR on the left and PDR on the right.	89
Figure (13):	Normal renal handling of albumin	99
Figure (14):	Proposed schema unifying the mechanisms of proteinuria and decrease in GFR in diabetic kidney disease	100
Figure (15):	The signalling mechanisms pertaining to the induction and progression of diabetic nephropathy	104
Figure (16):	Characteristic glomerular changes of DKD	110

List of Figures of (Results)

Fig. No.	Title	Page No.
Figure (1**):**	Mean age difference among patient groups	134
Figure (2**):**	Sex distribution among patient groups.	135
Figure (3**):**	Diabetic history among patient groups.	136
Figure (4**):**	Hypertension history among patient groups.	137
Figure (5**):**	Cardiac history among patient groups.	138
Figure (6**):**	Mean glycated Hgb level among patient groups.	139
Figure (7**):**	Mean Creatinine level among patient groups.	140
Figure (8**):**	Mean cholesterol level among patient groups.	141
Figure (9**):**	Mean triglycerides level among patient groups.	142
Figure (10**):**	Mean WBC's count among patient groups.	143
Figure (11**):**	Mean esinophils count among patient groups.	144
Figure (12**):**	Mean IgE level among patient groups.	145
Figure (13**):**	Mean Albumin / Creatinine ratio among patient groups.	146
Figure (14):	Pulmonary functions among patient groups.	147
Figure (15**):**	Correlation between esinophils count and albumin/ creat ratio.	149
Figure (16**):**	Correlation between serum IgE and albumin/ creat ratio.	151

INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in patients with type 2 diabetes ***(Isomaa et al., 2001).*** Evidence has accumulated that inflammation such as chronic infection or collagen disease is crucially involved in atherogenesis ***(Wick et al., 2004).***

In addition, patients with allergic disorders such as allergic rhinitis or asthma have also been reported to be at increased risk for atherosclerosis ***(Hospers et al., 1999).***

Indirect support for this clinically relevant concept is derived from previous studies that showed disorders such as eosinophilia, elevated serum IgE level, positive skin-prick test and self-reported asthma are associated with increased risk for CVD. Male gender is an independent risk factor for CVD ***(Hospers et al., 1999).***

Moreover, elevated albumin excretion rate, which is a useful marker of diabetic nephropathy, has been reported to be associated with increased risk for cardiovascular mortality ***(Dinneen and Gerstein, 1997).***

Eosinophils are a type of white blood cell that contributes to inflammation in allergic diseases. The albumin excretion rate is a key indicator of kidney disease and is considered one of the major complications of diabetes ***(Fukui et al., 2009).***

Recent study showed that a higher number of eosinophils in the blood may indicate kidney disease. Surprisingly, the link between eosinophil count and albumin excretion rate was even stronger than for known risk factors like high blood pressure and poor diabetes control ***(Rowan, 2010).***

Some of the anti-inflammatory treatments used by patients with allergies can lower the eosinophil count, and it's possible that these treatments could also benefit male patients with diabetes ***(Rowan, 2010).***

AIM OF THE WORK

The aim of the present study was to evaluate the relationships between eosinophil count and serum IgE as allergic markers and albuminuria among allergic asthmatic patients with type II diabetes.

Chapter (1)

BRONCHIAL ASTHMA

Definition

Asthma is a chronic inflammatory disorder of airways in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper-responsiveness that leads to recurrent episodes of wheezing, chest tightness, breathlessness and coughing that occurred particularly at night or early morning. These episodes are usually associated with widespread but variable degree of airflow obstruction within the lung that is often reversible either spontaneously or with treatment ***(GINA, 2009).***

Epidemiology

Tracking the epidemiology of asthma is confounded by changes in how asthma has been described and defined over the decades. Most epidemiological studies use questionnaires, self-reports of asthma symptoms, and reports of physician diagnosis of asthma ***(Murray et al., 2005).***

The International Study of Asthma and Allergies in Childhood (ISAAC), a monumental study which involved 155 centers in 56 countries was one of the first to reliably compare the prevalence of asthma worldwide. Surveying nearly half a million children 13–14 years of age, this study found great

disparities as high as a 20 to 60-fold difference in asthma prevalence across the world, with a trend toward more developed and westernized countries having higher asthma prevalence.

Prevalence of asthma in Egypt

Georgy et al. (2006), in a study made to assess Prevalence and socioeconomic associations of asthma and allergic rhinitis in northern Africa including Egypt that among 11–15 yrs -old schoolchildren in Cairo, the overall prevalence of wheezing in the last year was 14.7% and of physician-diagnosed asthma was 9.4%. This study clearly shows that allergic rhinoconjunctivitis and asthma symptoms are much more prevalent among those from poorer backgrounds. Asthma is relatively common, and probably undiagnosed and untreated, particularly among children from less wealthy families in Cairo.

In another study made by ***Magdy Zedan et al. (2009).*** Out of the 2720 responding children, 209 children fitted the diagnosis of asthma including 106 (8.6%) males and 103 (6.9%) females.

Thus, the overall prevalence of asthma was 7.7 % (8% in urban and 7% in rural areas).

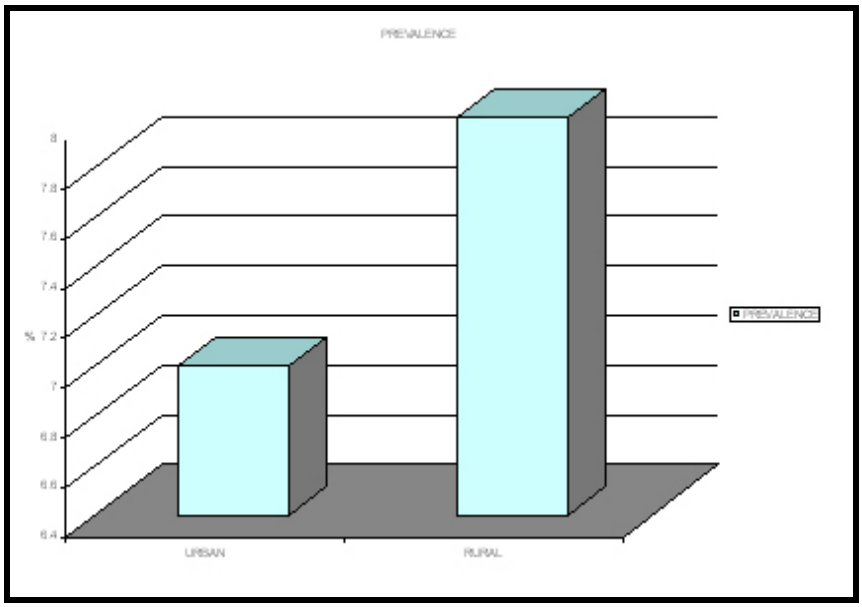

Figure (1**):** Prevalence of asthma in urban and rural areas in Egypt.

Factors influencing the development and expression of asthma

Factors that influence the risk of asthma can be divided into those that cause the development of asthma and those that trigger asthma symptoms, some do both. The former include host factors which are primarily genetic and the latter are environmental factors ***(GINA, 2010).***

Host Factors

1. Genetic
2. Obesity
3. Sex