Assessment of Metabolic Syndrome in Patients with Chronic Urticaria

Thesis

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Howaida Osama

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List of Abbreviations

AACE .....American Association of Clinical Endocrinology

ACE .....Angiotensin converting enzyme

ADN .....Adiponectin

APST.....Autologous Plasma Skin Test

ASST.....Autologous Serum Skin Test

BMI.....Body Mass Index

CD .....Cluster of Differentiation

CIU .....Chronic Idiopathic Urticaria

CMS.....Cardiac Metabolic Syndrome

CNS .....Central Nervous System

COPD.....Chronic Obstructive Pulmonary Disease

CSU .....Chronic Spontaneous Urticaria

CU .....Chronic Urticaria

CVD .....Cardiovascular Disease

DBP .....Diastolic Blood Pressure

DM2.....Diabetes Mellitus Type 2

DPU .....Delayed Pressure Urticaria

EAACI.....European Academy of Allergology and Clinical Immunology

ECP .....Eosinophil Cationic Protein

EDF .....European Dermatology Forum

EGIR.....European Group for the Study of Insulin Resistance

ESR .....Erythrocyte Sedimentation Rate

FBG .....Fasting Blood Glucose

FcεRI .....High-Affinity Receptor for IgE

List of Abbreviations

FFA.....Free Fatty Acids

G6PD .....Glucose-6 Phosphate Dehydrogenase

GA2LEN.....Global Allergy and Asthma European Network

GM-CSF .....Granulocyte Macrophage Colony Stimulating Factor

HDL .....High Density Lipoprotein

HDL-C.....High Density Lipoprotein-Cholesterol

HPA .....Hypothalamic Pituitary Axis

ID .....Intra Dermal

IDF .....International Diabetes Federation

IFG .....Impaired Fasting Glucose

IgG.....Immunoglobulin G

IGT .....Impaired Glucose Tolerance

IR .....Insulin Resistance

IRS .....Insulin Receptor Substrate

LDL.....Low Density Lipoproteins

LTRA .....Leukotriene Receptor Antagonists

MBP.....Major Basic Protein

MEP.....Mediterranean Food Pattern

Met S.....Metabolic Syndrome

MMP-9 .....Matrix Metalloproteinase -9

Nampt .....Nicotinamide Phosphoribosyl Transferase

NASH.....Nonalcoholic Steatohepatitis

NCEP ATP II .....National Cholesterol Education Program Adult Treatment Program III

NSAID.....Non-Steroidal Anti-Inflammatory Drugs

OGTT.....Oral Glucose Tolerance Test

List of Abbreviations

PAF.....Platelet Activating Factor
PAI-1 .....Plasminogen Activator Inhibitor
PCOS .....Polycystic Ovarian Syndrome
PG2.....Prostaglandin2
PUVA .....Phototherapy with UV Light
S IgE.....Serum Immunoglobulin E
SBP.....Systolic Blood Pressure
SCH .....Subclinical Hypothyroidism
SD.....Standard Deviation
SNS.....Sensory Nervous System
TC.....Total Cholesterol
TG .....Triglycerides
TNF .....Tumor Necrosis Factor
UVB .....Ultraviolet B
UVR.....Ultraviolet Rays
VAF .....Visceral Abdominal Fat
VLDL .....Very Low Density Lipoproteins
VTE .....Venous Thromboembolism
WAO .....World Allergy Organization
WHO .....World Health Organization

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Abstract

A systemic pro-inflammatory and pro-coagulating state occurs in subjects who have both chronic urticaria and metabolic syndrome. To investigate the prevalence and clinical impact of metabolic syndrome in Egyptian patients with chronic urticaria, a case control study was performed included 160 subjects. Metabolic syndrome was assessed by the WHO criteria. Twenty one patients (26.25%) had metabolic syndrome compared to 11.25% in matched controls group (p=.015). metabolic syndrome was higher in chronic urticaria patients with long disease duration. There was a statistical significant difference as regard body mass index, serum triglyceride, high density lipoprotein, fasting blood glucose level and blood pressure. In this study metabolic syndrome was higher in chronic urticaria patients with negative autologous serum skin tests compared with those without metabolic syndrome. Also metabolic syndrome was higher in chronic urticaria with angioedema in comparison with those without angioedema.

We conclude from this study that, patients with severe and uncontrolled chronic urticaria, especially those with high body mass index should be evaluated for metabolic syndrome in order to reduce cardiovascular risk and improve chronic urticaria outcomes.

INTRODUCTION

Chronic urticaria is a common skin disorder defined by persistent or recurrent wheals and pruritus of at least 6 weeks duration. The wheals are thought to be due to activation of cutaneous mast cells, which release various of inflammatory mediators including histamine, proteases, leukotrienes and tumor necrosis factor ***(Kaplan et al., 2009).*** Life time prevalence of chronic urticaria is 0.5% in general population ***(Sagi et al., 2011).***

The cardinal clinical features of urticaria that distinguish it from any other types of inflammatory eruption are the repeated occurrence of short-lived cutaneous wheals accompanied by redness and itching ***(Kaplan, 2002).*** It occurs most commonly in women and has a peak age of onset between 20 and 40 years ***(Sussman et al., 2015).***

Diagnosis is based on questioning and clinical examination to rule out differential diagnosis, few diagnostic tests are necessary for diagnosis and management ***(Soria and Frances, 2014).***

The treatment options are primary prevention in the form of avoidance of aggravating factors, counseling, anti-histamines, leukotrienes, receptor antagonists, prednisolone, sulphasalazine and immunosuppressives ***(Godse, 2009).***

Chronic urticaria and metabolic syndrome share chronic low grade inflammation, involving TNF alpha, ECP and C3, they may be mutually triggered or exacerbated ***(Ye et al. 2013).*** Metabolic syndrome is characterized by increased levels of inflammatory marker such as IL-1, IL-6. TNF and CRP ***(Devaraj et al., 2004)***.

Association between metabolic syndrome and inflammatory diseases for examples: psoriasis, systemic lupus erythematosus and rheumatoid arthritis, have been reported ***(Love, 2011)***.

Metabolic syndrome is a complex disorder with high socioeconomic coast that is considered a worldwide epidemic, Metabolic syndromes is defined by a cluster of interconnected factors that directly increase the risk of coronary heart disease (CHD), other forms of cardiovascular atherosclerotic diseases (CVD) and diabetes mellitus type 2 (DMT2) ***(Kassi et al., 2011).*** Recently the National Cholesterol Education Programs Adult Treatment Panel 111 report (ATP 111) identified six components of metabolic syndrome that related to CVD: abdominal obesity, atherogenic dyslipedimia, raised blood pressure, insulin resistance+-, glucose intolerance, proinflammatory and prothrombotic states.