شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

The most prevalent allergenic airborne pollens among Egyptian patients with respiratory allergy

Thesis

Submitted for Partial Fulfillment of MD Degree
In Internal Medicine

By

Nada Mohamed Ahmed Noor Al-Din
M.B.B.Ch., M.SC. Ain Shams University

Supervised by

Prof. Dr. Maged Mohammed Refaat
Professor of Internal Medicine - Allergy and Clinical Immunology
Faculty of Medicine - Ain Shams University

Ass. Prof. Nermine Abd El-Nour Melek
Assistant Professor of Internal Medicine
Allergy and Clinical Immunology
Faculty of Medicine - Ain shams University

Ass. Prof. Eman Al-Sayed Ahmed
Assistant Professor of Internal Medicine
Allergy and Clinical Immunology
Faculty of Medicine - Ain shams University

Dr. Osama Mohamed Abdel Latif
Lecturer of Internal Medicine - Allergy and Clinical Immunology
Faculty of Medicine - Ain shams University

Dr. Manar Farouk Mohamed
Lecturer of Internal Medicine - Allergy and Clinical Immunology
Faculty of Medicine - Ain shams University

Faculty of Medicine
Ain Shams University
2020

Acknowledgement

First and foremost, thanks to Allah; the most kind and merciful, providing me the opportunity to step in the world of science and who, giving me the efforts to complete this work.

No words can express my profound thanks and deep gratitude to **Prof. Dr. Maged Mohammed Refaat,** for his guidance and encouragement for me in all stages of this work. I feel deeply indebted to providing great interest in reading and revising the manuscript carefully. He did not spare by his efforts, time or advices so I will not forget that and I will remain grateful to his forever.

My sincere thanks, deep appreciation and gratitude to **Assistant Prof. Dr. Nermine Abd El-Nour Melek**, for suggestion of the point of work, sincere encouragement and cooperation in offering all facilities throughout this work. She is really kind and active person.

I express my appreciation to **Assistant Prof. Dr. Eman Al-Sayed Ahmed,** for her valuable advice, patience, unlimited assistance, support and kind supervision.

I wish to express my deepest feeling of gratitude to **Dr. Osama Mohamed Abdel Latif**, for the great work he has done for this study, precious guidance and unlimited faithful support.

Also, I would like to thank **Dr. Manar Farouk Mohamed** for the great help that they have done for this study.

My special thanks and appreciation for all **participants and volunteers** who participated in this study.

Nada Mohamed Ahmed

List of Contents

List of Abbreviations

ABPA	Allergic broncho-pulmonary aspergillosis
ACE	Angiotensin converting enzyme
ACO	Asthma and chronic obstructive pulmonary disease overlap syndrome
AIT	Allergen immunotherapy
APC	Antigen presenting cell
AR	Allergic rhinitis
ARIA	Allergic rhinitis and its impact on asthma
BA	Bronchial asthma
BAT	Basophil activation test
CD	Cluster of differentiation
CS	Corticosteroids
CT	Computerized tomography
CysLTs	Cysteinyl leukotrienes
DCs	Dendritic cells
EAACI	European academy of allergy and clinical immunology
ECP	Eosinophil cationic protein
FENO	Fractional exhaled nitric oxide
FEV1	Forced expiratory volume in 1 second
Fig	Figure
FVC	Forced vital capacity
GINA	
HDM	House dust mites
ICAM-1	Intercellular adhesion molecule-1
ICS	Inhaled corticosteroids
IgE	Immunoglobulin E

List of Abbreviations

IL	Interleukin
ILCs	Innate lymphoid cells
INS	Intra nasal steroids
IV	Intravenous
LABA	Long acting beta agonists
LAMA	Long-acting muscarinic antagonist
LAR	Local allergic rhinitis
LTP	Lipid transfer proteins
LTRA	Leukotrienes receptor antagonist
NANIR	Non-allergic non-infectious rhinitis
NAPT	Nasal allergen provocation test
NAR	Non- allergic rhinitis
NARES	Non-allergic rhinitis with eosinophilia syndrome
NO	Nitric oxide
OAS	Oral allergy syndrome
OCS	Oral corticosteroids
PEF	Peak expiratory flow
PFAS	Pollen-food allergy syndrome
RAST	Radioallergosorbent testing
RF	Risk factors
RSV	Respiratory syncytial virus
SABA	Short acting beta agonists
SC	Subcutaneous
SCIT	subcutaneous immunotherapy
sIgE	Specific immunoglobulin E
SLIT	Sublingual immunotherapy

List of Abbreviations

SNP.....Single nucleotide polymorphism

SPT.....Skin prick test

TH .....T helper

TNF .....Tumor necrosis factor

TSLP.....Thymic stromal lympho-poietin

WHO .....World health organization

List of Tables

List of Tables

List of Figures

List of Figures (Continued)

Abstract

Background: Allergy symptoms occur when the immune system overreacts to environmental allergens, such as pollen or dust, which are typically harmless to most individuals but induce a potentially severe reaction to those who are sensitive to them. Pollen is one of the main reasons to cause seasonal allergic respiratory diseases and it is influenced by multiple risk factors.

Objective: To determine the most prevalent types of allergenic pollens by skin prick testing among Egyptian patients with respiratory allergy (asthma and/or allergic rhinitis).

Methods: 200 adult patients, all were subjected to the following: full detailed medical history, clinical examination, asthma severity grading according to the GINA Guidelines, allergic rhinitis severity grading according to ARIA Guidelines, pulmonary Function tests for asthmatic patients. (PFTs**)**, CBC with differential for detection of eosinophilic count, Skin prick testing (SPT) to common environmental allergens and common food allergen.

Results: The present study proved that the grass pollens; timothy grass and maize were the most prevalent pollens among Egyptian respiratory allergy patients.

Conclusion: Difference in results of SPT performed to patients across different countries is explained by the difference in climates, which affects pollination, Egypt is considered to have a dry, desert-like climate in addition to its coastal regions. Our results revealed that both timothy grass and maize pollens were the most prevalent among Egyptian respiratory allergy patients.

Keywords: Allergic Rhinitis, Bronchial Asthma, Pollen, Skin Prick Test

INTRODUCTION

Respiratory allergic airway diseases mainly include allergic rhinitis and bronchial asthma. As regard allergic rhinitis, it is an inflammation in the nasal mucosa characterized by sneezing, nasal itching and discharge. It is an IgE mediated immune reaction characterized by sensitization of mast cells upon exposure to certain allergens and release of multiple allergy mediators; most important of which is histamine. Severe allergic rhinitis has been associated with significant impairments in quality of life, sleep and work performance ***(Hasan and Timothy, 2016).***

Bronchial asthma has become widespread and currently affects almost a quarter billion people worldwide with an increasing rate of prevalence. It is a heterogenic, complex, chronic inflammatory and obstructive lung disease, which can be associated with many comorbidities and traditionally, it has been divided into several subtypes ***(Heck et al., 2017).***

The increase in allergies is a phenomenon that is being observed in all developing countries. For a long time, science has taken as a starting point that solely a genetic predisposition is a precondition for the development of an allergy. Today, knowledge of environmental factors that can alter genes or the transcription of genes in the cells, has