RESPIRATORY TRACT ALLERGY AND ITS RELATION TO ENVIRONMENTAL FACTORS

THESIS
SUBMITTED IN PARTIAL FULFILMENT
OF THE MASTER DEGREE OF
CHILD-HOOD STUDIES
(MEDICAL DEPARTMENT)

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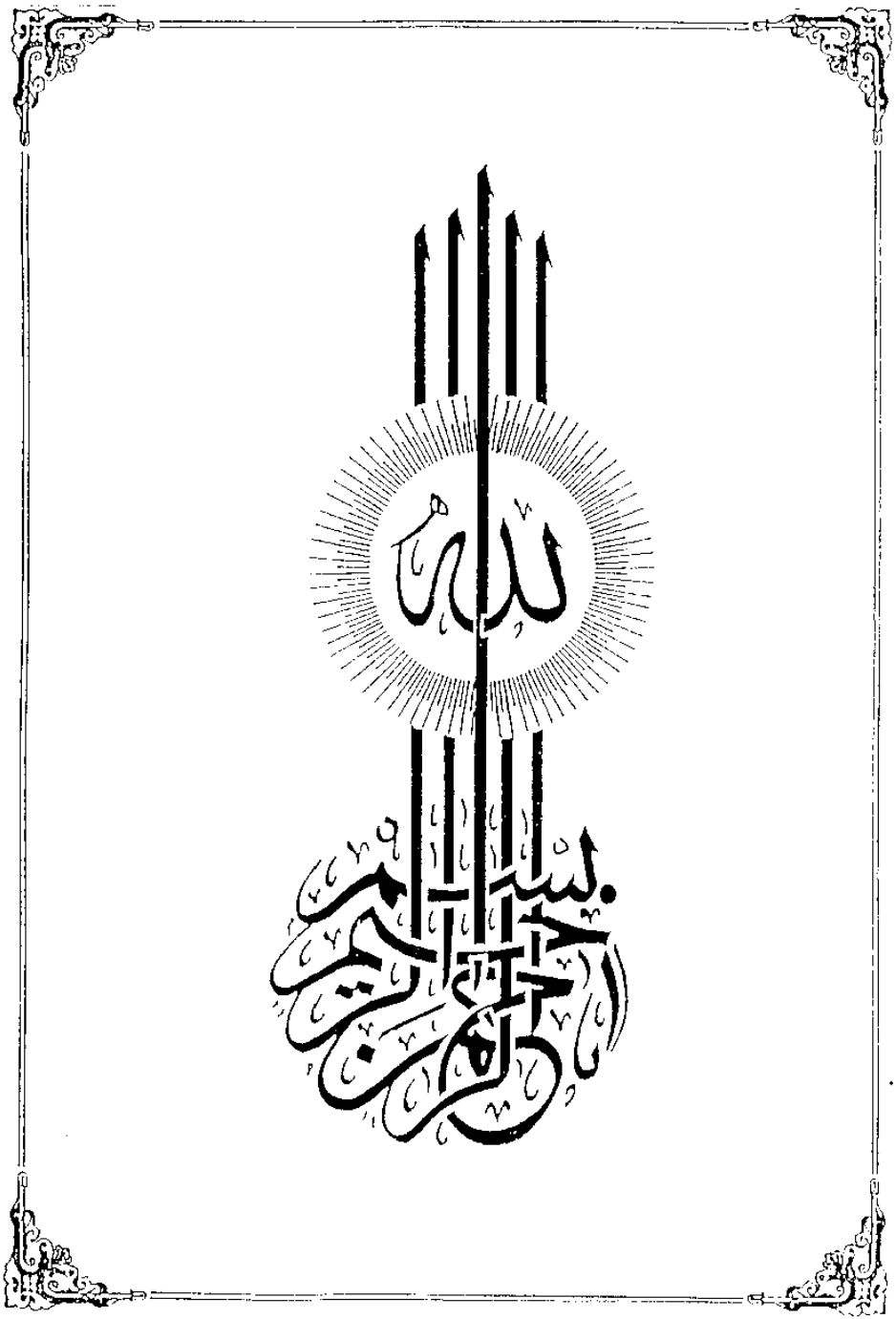
1990

TO MY MOTHER



ACKNOWLEDGEMENT

I would like to express my deepest gratitude and my sincere appreciation to my eminent Supervisor **Dr. HODA EL-Tayeb NASER,** Prof. of general Medicine, Faculty of Medicine, AIN SHAMS UNIVERSITY; for her masterly guidance, supervision, constructive criticism, and for her contineous support throughout the whole work.

I am grateful to **Dr. NABIL ABDEL RAZIK RABIE,** Prof. of Ear, Nose and threat, Faculty of Medicine, AIN SHAMS UNIVERSITY; for his supervision and valuable advices.

I am also, deeply indebted and grateful to **Dr. MOSTAFA AL-NASHAR,** Lecturer of Ear, Nose and throat, Institute of Post-Graduate child-hood studies, AIN SHAMS UNIVERSITY; for his great effort, patience and continuous encouragement.

Thanks to **Dr. LAILA KARAM EL-DIN,** Lecturer in the Institute of post-graduate childhood studies, AIN SHAMS UNIVERSITY; for her co-operation and nice guidance.

Thanks to Dr. MOUSTAFA MOHAMED Ass. Prof. of Ear , NOSE and throat, Faculty of Medicine AIN-SHAMS UNIVERSITY for his guidance and advice.

CONTENTS

INTRODUCTION

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The respiratory tract is the organ system most frequently affected by allergic disorders during childhood. All respiratory tract allergies describe a symptom complex seen in children who have become sensitized to wind-borne pollens of trees, grasses and weeds (Boushey et al., 1980).

Several studies in recent years have indicated that the occurence of asthma and allergic disorders may be increasing in relation to environmental factors (Hattevig et al., 1987).

The reasons for this are not fully understood, but various environmental pollutants may play a part. For example, exposure of children to tobacco smoke is wide spread and has been shown to give increased bronchial hyper-reactivity and increased number of respiratory tract infections (Ware et al., 1984).

House dust is a major cause of perennial allergy and so it is an important, common and universal air-borne allergen. (Miyomato, 1980).

Many fungal species have been reported to cause allergic symptoms by inhalation. There is always enough evidence to indicate that dust, in any home-regardless of the age or the condition of the home , will contain most of the in-door fungal spores viable or not. (Calvo et al., 1982).

In a small proportion of respiratory illnesses, psychological factors are present but their mode of action is unknown. Almost certainly they intensify the attacks or allergy rather than exert any causal influence. Various psycho-social stresses - an different classes - play a role in aggravating the attacks. (Clark and Godfrey, 1977).

Part I :

Review of Literature

Chapter 1 :

Bronchial asthma

Bronchial asthma

The term "Asthma" is derived from a Greek word meaning short drawn breath. For many years it was used to describe virtually any disorder that produce sudden attacks of severe shortness of breath (Fish, 1980).

Asthma covers a broad clinical spectrum, ranging from mild, readily reversible bronchospasm to severe chronic intractable obstruction to the airflow (Kay et al., 1985).

Asthma can be regarded as a state of airway rather than a disease, being dynamic reversible and can be treated. (Turner - Warwick, 1978).

The difficulties in defining the disease are due to reversibility of airway obstruction which may be impossible to demonstrate on certain occasions. For instance, the mild episodic asthma may be free of symptoms and have normal lung function for prolonged periods of time, whereas the airway obstruction of acute severe asthma may take several days before any reversibility can be demonstrated. (Kay, 1984).

Brookes (1976) described the disease as an illness which is characterized by wide variations over short periods of time in resistance to flow in the intra - pulmonary airways.

A joint committee of the American Thoracic Society (ATS) and the American College of Chest Physicians (ACCP) (1975) defined asthma as a disease characterized by an increased responsiveness of airways to various stimuli and manifested by slowing of forced expiration with changes in severity either spontaneously or with treatment.

Ellis, (1983) defined asthma as an obstructive disease of the pulmonary airways resulting from spasm of airway muscles, increased mucous secretion and inflammation.

Pearlman (1984) defined asthma as a disorder of the tracheobronchial tree in which there is recurrent, at least partially reversible generalized obstruction to airflow.

Some believe that the only univocal definition of asthma can be "reversible obstructive airways disease of unknown etiology untill proved otherwise" (Parr, 1985).

Epidemiology :

Asthma or respiratory tract allergy is a relatively common problem in most parts of the world. (Smith, 1974).

The most estimates of the prevalence of asthma during the childhood vary from 1.4% in Stockholm, Sweden. (Kraepelien, 1963) to 2.8% in Denver, Colorado (Freeman et al., 1964) to 4.8% in Aberdeen, Scotland (Dawson et al., 1969) to 11.4% in Melbourne, Australia (Mc Nichol et al., 1969).

The Prevalence of asthma among the United States children is reported to be 4.9% to 12.1% (Arbeiter, 1967).

In Egypt, the incidence of asthma among diseased children presenting to the out-patient department, children's hospital, Cairo University was found to be 2.2% (El Hefny, 1966) and in African children the incidence varied from 2.4% to 7.8% (Aderele, 1985).

By comparing studies of such incidence from different countries, it was found that some environmental as well as genetic influences may play a role in it. (Smith, 1974).

The true prevalence of asthma has been difficult to determine owing to the uncertainties regarding definition of the disease. (Ellis, 1983).

There are few data available to shed light on the true incidence and prvalence of asthma in children primarily

[illegible] the difficulty of interpreting and comparing the results between reports. This difficulty is caused by interpretation of age of onset, composition of populations studied (e.g. age, race, socio-economic factors), methodology (retrospective versus prospective, questionnaire and interview techniques, and whether or not physical examination and laboratory studies were included) and the manner in which prevalence or incidence rates were defined (Siegel et al., 1983).

Respiratory tract allergy is a common condition in both children and adults, the United States Health Service reported that asthma and other allergic diseases account for one third of all chronic conditions occuring annually in children under seventeen years of age (Edwin and Kending, 1968).

As regards the age incidence, about 80% of asthmatic children develop symptoms before the age of 5 years and one third of them before the age of 2 years (Price, 1984).

Collins in 1973 reported that 10-15% of children develop asthma presented in the 1st. year of life. The prevalence of asthma in various populations of children ranged from 1.37% to 13.4% or higher (Ellis, 1983).

In pre-school age the incidence is higher than in children 7-9 years old (Ellis, 1983).

Most studies reported that asthma is more prevalent

[illegible] (Hill et al., 1984).

The reason for sex difference in asthma can not be explained on genetic basis (Bull, 1976). After puberty, the sex difference disappears. (Price, 1984).

There is also difference in prevalence of asthma in urben and rural areas (Bull, 1976). The observation seen when african natives move to urbanized areas, the prevalence of disease increases substantially (Godfrey, 1975). In the latter population, a number of factors may play a role, such as exposure to urban air pollutants and also decreased load of parasites, hence less parasitic IgE (which might prevent mast cell sensitization by allergen-specific IgE) has been considered (Merrette et al., 1976) but the observation remains unexplained.

The available data as regards the social class are limited. Graham et al., (1967) found that asthma was over-presented in the upper and middle social classes (Class I & II) and under-presented in lower social classes (Class IV & V). On the other hand, Mitchell and Dawson (1973) found an excess of severe asthma in children of semi and unskilled manual workers (social class IV & V) and these children tend to come from large families (4 or more children) regardless of the social class.

This is consistent with the results of Dawson et al.,