"STUDY OF THE PREVALENCE OF BRONCHIAL A S T H M A"

IN

ONE OF THE VILLAGES OF UPPER EGYPT

(Koam Garib)

THESIS

Submitted in Partial, fulfilment for
Master Degree of Chest Diseases

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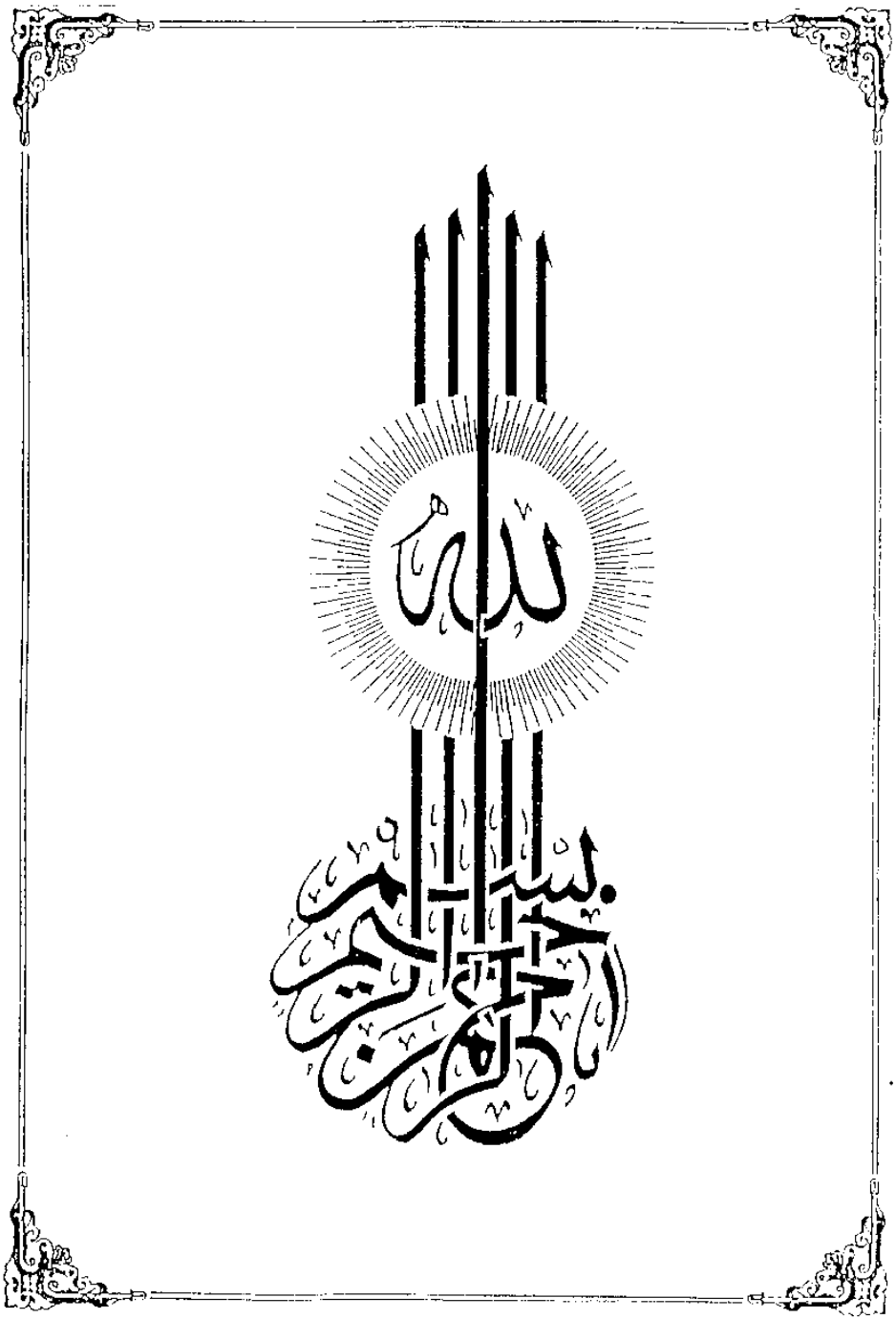

C O N T E N T S

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INTRODUCTION

AND AIM OF WORK

INTRODUCTION

Bronchial asthma is a disease that may affect any age and sex, it occurs in the form of paroxysmal attacks of breathlessness and chest wheeze seperated by a symptomatic intervals varying in length between a few hours and weeks or even years, it may occur in chronic form and the patient have breathing difficulties even in the intervals between the attacks.

There have been many prevalence studies of asthma in developed countries, but little has been recorded from the rest of world, most available evidence suggests that asthma particularly childhood asthma may be uncommon in some underdeveloped countries, this probably due to the fact that some populations in under developed countries may have high IgE levels caused by parasitic infection. This non specific IgE might block mast cell receptor sites and prevent specific (anti-allergic) IgE from occupying those sites. (Cookson and Makoni, 1980).

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AIM OF THE WORK :

The aim of this work is to study the prevalence of bronchial asthma in one of the villages of upper Egypt in order to determine the prevalence of this disease in different regions of our country and then to correlate our results and results of other literatures

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REVIEW OF LITERATURE

DEFINITION OF BRONCHIAL ASTHMA

There is no satisfactory agreement about definition of asthma. Asthma is generally understood to refer to a disease characterized by episodes of wheezy breathlessness caused by narrowing of intrapulmonary airways. In spite of the apparent simplicity of this brief statement which informed observers would agree to be descriptive of an acceptable usage of the word asthma, several groups who have considered the problems of definition of chronic bronchopulmonary diseases have had difficulty in agreeing on a formal definition of asthma, and definitions of several different sorts are to be found in standard textbooks.

(Scadding,1976)

A Ciba foundation Guest Symposium in 1959 suggested: Asthma refers to the condition of subjects with widespread narrowing of the bronchial airways, which changes in severity over short periods of time either spontaneously or under treatment, and is not due to cardiovascular disease. The clinical characteristics are abnormal breathlessness. which may be paroxysmal or persistent, wheezing and in most cases relief by bronchodilator drugs (including corticosteroids).

The Committee on Diagnostic Standards of the American Thoracic Society suggested in 1962 :

Asthma is a disease characterized by an increased responsiveness of the trachea and bronchi to various stimuli and manifested by widespread narrowing of the airways that changes in severity either spontaneously or as a result of therapy. The term asthma is not appropriate for the bronchial narrowing which results solely from widespread bronchial infection, e.g., acute or chronic bronchitis; from destructive disease of the lung, e.g. pulmonary emphysema; or from cardiovascular disorders. Asthma, as here defined, may occur in subjects with other bronchopulmonary or cardiovascular diseases, but in these instances the airway obstruction is not causally related to these diseases.

Scadding (1976) suggested that Asthma is a disease characterized by wide variations over short periods of time in resistance to flow in the airways of the lungs.

Increases in resistance to air flow may be related to exposure to environmental factors, especially inhaled substances in concentrations that do not effect the majority of persons, or they may occur without apparent external cause. Diminution of increased resistance in response to bronchodilator drugs or to corticosteroid or corticotropin treatment is usually demonstrable. Although asthma is characteristically episodic, it may become persistent with only minor variations.

CLINICAL TYPES OF BRONCHIAL A S T H M A

(I) Extrinsic asthma : Asthma in which there is a history of external factors precipitating the attack, it can be subdivided into :

(a) Atopic extrinsic asthma : there is a propensity to develop immediate wheal and flare reactions to skin tests with a battery of allergens. These subjects often have a family history of allergic manifestations of various sorts (asthma, hay fever and urticarial eruptions), and may themselves exhibit allergic symptoms other than asthma. They have increased serum level of immunoglobulin E, and there is considerable evidence that this immunoglobulin class contains antibodies which develop in response to extrinsic allergens, and play a role in producing the clinical manifestations of the disorder. It often appears in childhoood and adolescence (Clavence, 1977).

(b) Extrinsic non atopic asthma : In this type of asthma the patients usually develop thesymptoms in relation to some particular agent often during the course of their job and often after excessive exposure. They have negative skin test to the standard range of common allergens,but may show an immediate, late, or dual response to the specific sensitizing agent. Specific IgE and IgG

antibodies may be demonstrable, but whether these are observed or not in an individual case will depend on how far suitable and purified antigens have been prepared, and that the mechanism of asthma may be non immunological in some instances (Turner Warwick, 1978).

In prick tests with the same allergens which give strong reactions in atopic subjects, the non atopic subjects do not react, or react only weakly but they may give immediate reactions to intracutaneous tests, inhalation tests cause asthma to appear late after 4-5 hours together with fever and leucocytosis (Pepys et al., 1974).

(II) Cryptogenic (Intrinsic) Asthma :

It is the type of asthma in which an extrinsic allergen can not be identified as a cause of symptoms. It includes a group of subjects with onset often after age 35 or 40, in whom a personal or family history of allergy is absent Skin tests show absence of immediate hypersensitivity to common allergens, and blood levels of immunoglobulin E are not abnormally elevated. These subjects are more often refractory to treatment than is the case in extrinsic asthma. Purulent sputum is more frequent and this resulted in an impression that tracheobronchial or other infection, with hypersensitivity to infecting organisms plays anaetiologic role, diagnostic overlap with chronic bronchitis occurs in this group of patients (Clavence, 1977).

* Differential Diagnosis between Extrinsic and Intrinsic asthma :

The Character	Extrinsic	Entrinsic
* Allergy in family history	common	rare
* Atopy	common	absent
* Onset	commonly in childhood or young	usually after age 35 years.
* Duration and intensity of symptoms	acute, minutes to hours (paroxysmal asthma) rarely a day, rarely chronic	presisting
* Infection	relatively uncommon	common, recurrent.
* Drugs sensitivity	rare	common
* Blood and secretory eosinophilia	frequent, often high (blood and secretions).	blood sometimes, secretion often high.
* Reaction type	I and or III	IV ?
* Antibodies	IgE or IgG elevated	negative or normal range.
* Specific IgE	invariably elevated	invariably negative.

* Total IgG	commonly elevated	normal or negative
* Skin test	+ ve	- ve
* Inhalation test with allergens	+ ve	- ve or nonspecific
* Exercise test	provaction of symptoms	provaction of symptoms
* Hyposensitization	effective	impossible
* B_2 adrenergic agents	very effective	moderately effective
* Aminophylline	very effective	moderately effective
* Anticholinergic	moderately effective	very effective
* Corticosteroids	very effective	very effective
* Prognosis	Favourable	often unfavourable

OCCUPATIONAL ASTHMA

Occupational asthma is variable airways narrowing causally related to exposure in the working environment to airborne dusts, gases, vapours, or fumes. It affects only a proportion (usually a minority) of those exposed to the agents which cause the disease and develops only after an initial symptom - free period of exposure which may vary between individuals from weeks to years. These symptoms develop during the working week, often increasing in severity as the week progresses, and improve at times of absence from work such as at week ends ar on holidays, only to recur on return to work. Symptoms may develop within minutes of exposure (immediate) or only several hours after the onset of exposure (late)

(Editorial of the Thorax,1980).

Crofton and Douglas (1981) suggested that : mechanisms of occupational asthma are :

(1) Irritative : inhalation of noxious fumes or vapours such as chlorine, phthallic anhydride and isocyanates can. In sufficient concentration, induce bronchospasm in any individual as a pure effect of bronchial irritation. Atopic subjects have a lower threshold for non-immunologically stimulated asthma than non-atopics.