

Assessment of Physician's Awareness of Allergic Rhinitis

Thesis

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List of Contents

Title	Page No.
List of Tables	5
List of Figures	6
List of Abbreviations	7
Introduction	1
Aim of the Work	3
Review of Literature	
▪ Allergic Rhinitis	4
▪ Physician's Awareness of Allergic Rhinitis	19
Participants and Methods	24
Results	33
Discussion	45
Recommendations	52
Summary and Conclusion	53
References	55
Arabic Summary	-

List of Tables

Table No.	Title	Page No.
Table (1):	Components of a complete history and physical examination for suspected rhinitis:.....	11
Table (2):	Differential Diagnosis of allergic rhinitis.....	15
Table (3):	Distribution of participants as regard graduation year:.....	34
Table (4):	Distribution of participants as regard hand graduation:.....	35
Table (5):	Survey findings regarding the physician's awareness of allergic rhinitis prevalence and facing and diagnosing cases before:.....	36
Table (6):	Physician's awareness of symptoms and signs suggestive to allergic rhinitis:.....	37
Table (7):	Physician's awareness of classification of allergic rhinitis:.....	38
Table (8):	Physician's awareness of severity of allergic rhinitis:.....	38
Table (9):	Physician's perception of allergic rhinitis as a major chronic respiratory disease	39
Table (10):	Physician's knowledge about appropriate methods for diagnosis of allergic rhinitis:.....	40
Table (11):	Physician's knowledge about treatment of allergic rhinitis:.....	41
Table (12):	Categories of the Knowledge score	42
Table (13):	Correlation between age of participants and the knowledge score:.....	42
Table (14):	Association between knowledge score and socio demographic data of the participants:	43
Table (15):	Association between knowledge score and facing and diagnosing cases of AR by the participants:.....	44

List of Figures

Fig. No.	Title	Page No.
Figure (1):	Allergic Rhinitis and its Impact on Asthma (ARIA).....	9
Figure (2):	An algorithm of the management of Allergic Rhinitis	17

List of Abbreviations

Abb.	Full term
ALELX	Alexandria
AR.....	Allergic rhinitis
ARIA	The Allergic Rhinitis and its Impact on Asthma
ASA	Acetylsalicylic acid
NSAIDs	Non-steroidal anti-inflammatory drugs
ACE	Angiotensin-converting enzyme
OTC	Over-the-counter
ASU	Ain Shams University
CME	Continuous medical education
CT	Computed tomography
GP	General practitioner
HCPs.....	Health care practitioners
IgA.....	Immunoglobulin A
IgM	Immunoglobulin M
IgE	Immunoglobulin E
IL	Interleukin
MRI.....	Magnetic resonance imaging
PAR	Perennial allergic rhinitis
QoL.....	Quality of life
SAR	Seasonal allergic rhinitis
WHO.....	World health organization

Abstract

The study declared that only 11.4 % of participants knew the prevalence of allergic rhinitis in the world.

Only 0.7% heard before about the allergic rhinitis and its impact on asthma (ARIA) classification and 43.3% of GPs knew that allergic rhinitis has a link with asthma. The majority of the participant GPs (84.5%) had knowledge score <50% knowledge which was higher in El Gharbia governorate in comparison to Cairo governorate. There was significant relationship between diagnosis of cases of AR before and knowledge score ($p<0.05$).

We found that the age, graduation year and facing cases of allergic rhinitis had no influence on knowledge score.

In conclusion, Management of AR is a major component of the practice for primary care clinics and the awareness of GPs and adherence to guidelines is different from area to area. It is important that international guidelines have clear criteria for the diagnosis of AR and practical recommendations for effective treatment. Local modifications may need to be made, but the standard for diagnosis and effective therapy of AR should not be compromised. Appropriate patient education by physicians with a good understanding of the nature of rhinitis and the available treatment options will maximize patient compliance and improve treatment outcomes.

Keywords: Magnetic resonance imaging, Perennial allergic rhinitis, Quality of life, Seasonal allergic rhinitis, World health organization

INTRODUCTION

Allergic rhinitis is an inflammatory disorder of the nasal mucosa marked by nasal congestion, rhinorrhea, and itching, often accompanied by sneezing and conjunctival inflammation (*Silva et al., 2009*). Over 400 million people suffer from allergic rhinitis around the world, which to a large extent remains underdiagnosed and undertreated. Unfortunately the health and economic impact of allergic rhinitis historically has been grossly underestimated and it is only recently that rhinitis has been recognized as a serious issue with epidemic proportions (*kaliner and scarupa, 2015*).

Children with allergic rhinitis often have related conjunctivitis, sinusitis, otitis media, serous otitis, hypertrophic tonsils and adenoids, and eczema. Childhood allergic rhinitis is associated with a 3-fold increase in risk for asthma at an older age which is associated with poor asthma control (*Bousquet et al., 2012*).

During the last 10-15 years, international guidelines and consensus statements have been developed to provide clinicians with basic recommendations for the diagnosis and management of rhinitis. Attention has focused on an improved understanding of the pathophysiological mechanisms underlying allergic inflammation which has led to the modification of therapeutic strategies, including the introduction of new drugs, routes of administration, dosages and schedules. In 2001, a WHO Initiative: Allergic Rhinitis and its Impact on Asthma (ARIA) has been developed by an international working group

(Bousquet et al., 2001). An update of ARIA 2008 was published in 2008 *(Bousquet et al., 2008)*. More recently, ARIA 2010 revision is published *(Brozek et al., 2010)*. For patients suffering from allergic rhinitis, general practitioners are often their first source of medical advice, so general health care practices represent an important target to be evaluated as part of the management of AR *(Van Hoecke et al., 2006)*. Unfortunately, the impact of these guidelines on the physician's management of AR patients in primary care practice is still not fully satisfactory and GPs need more education *(Kasje et al., 2002)*.

AIM OF THE WORK

Assessment of the awareness of physicians in Cairo and El Gharbia Governorates of allergic rhinitis.

ALLERGIC RHINITIS

Definition:

Allergic rhinitis (AR) is a symptomatic disorder of the nose induced after exposure to allergens via IgE-mediated hypersensitivity reactions, which are characterized by four cardinal symptoms of watery rhinorrhea, nasal obstruction, nasal itching and sneezing (*Bousquet et al., 2001*).

Epidemiology:

Allergic rhinitis is very common condition throughout the world, Worldwide, allergic rhinitis affects up to 20 - 30 % of the population (*WHO, 2012*). Over 400 million people suffer from allergic rhinitis around the world, which to a large extent remains under diagnosed and undertreated. Unfortunately the health and economic impact of allergic rhinitis historically has been grossly underestimated and it is only recently that rhinitis has been recognized as a serious issue with epidemic proportions (*kaliner and scarupa, 2015*). It may be less common in some parts of the world, although even developing countries report significant rates (*Kong et al., 2009*).

The prevalence in the industrialized world is increasing, particularly in urban areas (*Solé et al., 2007*). Allergic rhinitis is recognized as one of the most common otorhinolaryngological condition which has considerable

effects on quality of life and can have significant consequences if left untreated (*Nathan, 2007*).

Although AR is not a severe disease, it has been acknowledged to have great impact on quality of life (QoL), impairments in social life and productivity at school and work, (*Benninger and Benninger, 2009*). Symptoms of AR develop before the age of 20 years in 80% of cases (*Aberg and Engstrom, 1990*). Boys with AR outnumber girls, but, in general, equal numbers are affected during adulthood (*Wright et al., 1994*).

Genetics and familial history:

Allergic rhinitis is a multi factorial disease with genetic as well as environmental factors influencing disease development. Allergic diseases such as asthma and rhinitis have closely related phenotypes and often occur with atopy (*Kurz et al., 2005*). They show strong familial and intra individual clustering, suggesting an overlapping disease etiology. Over the past decade, various antigens of the HLA system have been identified as responsible for seasonal allergic rhinitis (*Kabesch et al., 2007*).

Risk factors:

Sensitization to allergens may occur in early life. However, besides allergens, early-life risk factors have rarely been related to rhinitis (*Rasanen et al., 2001*). Young maternal

age, markers of fetal growth multiple gestation, mode of delivery, prematurity, low birth weight, growth retardation, hormones during pregnancy and perinatal asphyxia were all inconstantly related to the risk of developing allergic diseases or rhinitis (*Savilahti et al., 2004*).

Pathogenesis:

In allergic rhinitis, numerous inflammatory cells, including mast cells, CD4-positive T cells, B cells, macrophages, and eosinophils, infiltrate the nasal lining upon exposure to an inciting allergen (most commonly airborne dust mite fecal particles, cockroach residues, animal dander, moulds, and pollens) (*Dykewicz and Hamilos, 2010*). The T cells infiltrating the nasal mucosa are predominantly T helper (Th)2 in nature and release cytokines (e.g., interleukin [IL]-3, IL-4, IL-5, and IL-13) that promote immunoglobulin E (IgE) production by plasma cells. IgE production, in turn, triggers the release of mediators, such as histamine and leukotrienes, that are responsible for arteriolar dilation, increased vascular permeability, itching, rhinorrhea (runny nose), mucous secretion, and smooth muscle contraction (*Small et al., 2007*). The mediators and cytokines released during the early phase of an immune response to an inciting allergen, trigger a further cellular inflammatory response over the next 4 to 8 hours (late-phase inflammatory response) which results in recurrent symptoms (usually nasal congestion) (*Lee and Mace, 2009*).

Link between Allergic Rhinitis and Asthma

The increasing evidence on the links between AR and asthma comes from epidemiologic, immunologic, and clinical studies. Epidemiologically, up to 40% of patients with AR also have asthma, and up to 80% of patients with asthma experience nasal symptoms. Furthermore, patients with AR are at three times the risk of developing asthma compared with those without AR and in children who develop rhinitis within the first year of life the chances of developing asthma are twofold greater as compared with those who develop rhinitis later in life. Therapeutic outcomes of treating AR in asthma have shown that AR treatment improves asthma symptoms and lowers overall costs and reduces hospitalizations (*Crystal et al., 2002*).

Classification of allergic rhinitis:

The former classification of AR comprised seasonal allergic rhinitis (SAR), which was mainly linked to pollen allergy, and perennial allergic rhinitis (PAR), which was mainly linked to house-dust mites. Many shortcomings of this classification have become apparent over the years. For example, many AR patients are polysensitized to pollen and perennial allergens (*Bauchau and Durham, 2005*), and thus cannot be classed as having SAR or PAR. Also, some countries have seasonal pollen, while others have pollen for many