



Evaluation of Effectiveness of Adjuvant Remedies in Treatment of Allergic Rhinitis in Children

A thesis Submitted for the fulfillment of Ph.D. in Childhood Studies (Child health and Nutrition) Department of Medical Studies for Children

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْحَكِيمُ

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List of Abbreviations

ARIA	Allergic Rhinitis and its Impact on Asthma
ADHD	Attention Deficit Hyperactivity Disorder
AR	Allergic Rhinitis
ARSS	Allergic rhinitis symptoms score
CAM	Complementary and Alternative Medicine
CNS	Central Nervous System
COPD	Chronic obstructive pulmonary disease
COX	Cyclooxygenase enzymes
CPT	Continuous performance test
CRS	Chronic Rhinosinusitis
CT	Computerized Tomography
E NT	Ear, Nose, Throat
FDA	Food and Drug Administration
HDM	House Dust Mites
HEPA	High-energy particular air (HEPA)
HLA	Human Leucocytic Antigen
HT	Herbal Therapy
Ig-E	Immunoglobulin-E-
IgG	Immunoglobulin G
INS	Intranasal steroids
ISAAC	International Study of Asthma and Allergies in Childhood
LRAs	Leukotriene Receptor Antagonists
MRI	magnetic resonance imaging
NAHR	Nasal airway hyperresponsiveness
NARES	Non allergic rhinitis with eosinophilia syndrome

NCCAM	National center for complementary & alternative medicine
NHANES	National Health and Nutritional Examination Survey
NHIRD	National Health Insurance Research Database
NHS	National Health Service
NP	Nasal Polyps
NPs	nanoparticles
NSAIDs	Non steroidal anti inflammatory drugs
OAD	Occupational airway diseases
PAR	Perennial allergic rhinitis
PER	perennial rhinitis
PNIF	peak nasal inspiratory flow
QOL	Quality of Life
RCTs	randomized controlled trials
RQLQ	Rhinoconjunctivitis Quality of Life Questionnaire
SAR	Seasonal allergic rhinitis
SCI	Subcutaneous Immunotherapy
SLI	Sublingual Immunotherapy
SLIT	Sublingual Immunotherapy tablets
WHO	World Health Organization

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ABSTRACT

Background: Homeopathy is one of the most popular of complementary and alternative therapies. Allergic rhinitis is one of the indications for which homeopathy is most frequently used. It is the most common chronic disease in pediatric population, It has a negative impact on quality of life, productivity and performance at work/school.

Objective: Evaluation of the effectiveness of homeopathic medicine in the treatment of allergic rhinitis in children.

Methods: A prospective, follow-up study was conducted in NRC. Patients aged between 6 and 12 years with diagnosis of allergic rhinitis were treated by homeopathic remedies. Pediatric Rhinoconjunctivitis Quality of life questionnaire (RQLQ) , Allergic Rhinitis Nasal Symptoms Score (ARSS), drugs usage and nasal smear eosinophils were done for all Patients at baseline and again after three months of homeopathic treatment.

Results: Fifty-three patients were screened, of whom 30 met the study eligibility criteria (average age 8.30 ± 2.322). The mean RQLQ score was 4.44 ± 1.3 at baseline, after 3 months of treatment, the mean had fallen to 2.10 ± 1.66 ($P < 0.001$) with mean reduction percent 52.7 %. The mean overall total symptoms score decreased significantly from 9.23 ± 2.07 to 5.57 ± 4.07 ($P < 0.001$), with mean reduction percent 50.48 %. Also, significant reduction in number of patients with positive nasal smears from 100% at baseline to 43.3% after homeopathic treatment and Patients used an average of 3.9 medications before homeopathic treatment and 2 after ($P < 0.001$).

Conclusions: After homeopathic treatment, patients reported an improvement of their symptoms of allergic rhinitis as reported in the ARSS, RQLQ, nasal smear eosinophils and drugs usage. Therefore, homeopathy could be effective as adjuvant therapy in treatment of AR.

Key Words : Homeopathy; Allergic rhinitis; quality of life; children

Introduction

Allergic diseases are considered as the most common immunologic disorders amongst the general population. There is increased evidence suggesting that the incidence of allergies is growing dramatically in the last few decades at various rates in different areas of the world. Allergies are genetically heterogeneous group of chronic, immune-mediated disorders that mainly include allergic rhinitis, bronchial asthma, acute urticaria, atopic dermatitis and food allergy. They are more prevalent amongst children than adults (**Hendaus et al. , 2016**).

It has been roughly estimated that one in three subjects develops hypersensitivity at any given time and at least 3 in 4 subjects develop an allergic reaction at least once in their lives. In Western areas about 10–25% of people are affected annually by allergic rhinitis (**Poddighe et al. , 2016**). Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 updated report showed that 500 million individuals in this world are having allergic rhinitis. Data reported that allergic rhinitis is the most common chronic disease in pediatrics affecting up to 40% of children (**Bousquet et al. , 2008**).

AR is a major chronic respiratory disease because of its prevalence, its effect on quality of life, productivity and performance at work/school, its economic impact on society and its relation to asthma (**Solelhac and Charpin , 2014**). Conventional medicine including topical or oral antihistamines, intranasal or systemic steroids and allergens immunotherapy (**Banerjee et al. , 2014**).

However, in some patients, symptoms cannot be relieved with only medical treatment or medical treatment could be restricted due to its adverse effects causing children to resist therapy. As a result, patients

search for additional therapies and approaches to be integrated into their healthcare, Alternative modalities are necessary for such patients **(Frenkel and Hermoni , 2002)**.

There is an increasing movement towards alternative medicine nowadays . The term Complementary and Alternative Medicine (CAM) includes homeopathy , herbal medicine , aromatherapy , acupuncture and healing with energy , among many others. In developing countries , the moderate cost and relatively few side effects of Complementary and Alternative Medicine (CAM) modalities are a great request particularly in chronic diseases which necessitate life long medical control **(Levy et al. , 2010)**. The role of homeopathy in chronic diseases has been proven in several studies. A comprehensive analysis of outcome and cost-effectiveness found that patients with chronic conditions had a better overall outcome with homeopathy than with conventional treatment (**Witt et al. , 2008**) Homeopathy is one of the leading complementary therapies used in treatment of this disease (**Wassenhoven , 2013**). Worldwide, homeopathic medicine is one of the most popular of complementary and alternative modalities. About 40% of clinicians in England recommend homeopathy and more than 60% of the French people use homeopathic medicine **(Ernst , 2007)**.

Homeopathy Is a system of medicine treating patients using very low dose preparations. Based on the principle of similars, or "like cures like" **(Ullman and Frass , 2010)**. Many clinical trials, had been published in "high impact" conventional medical journals, showed significant results of homeopathic medicine in patients with allergic diseases. Majority of these clinical trials had been considered as high quality trials **(Ullman and Frass , 2010)**.

Objective

- To evaluate the effect of homeopathic remedies in the treatment of allergic rhinitis in children.
- To integrate homeopathy into medical therapy on scientific and ethical ground.
- To overcome the side effects of chemical drugs.

ALLERGIC RHINITIS

Allergic Rhinitis

Definition

Allergic rhinitis is described as a symptomatic disease of the nasal mucous membranes resulting from IgE-dependent inflammation after exposure of nasal membranes to allergens. There are 2 different phases:

The acute-phase reaction: Mast cells within the nasal mucosa release histamine and different inflammatory mediators after exposure to allergens. Those act on nerve endings, blood vessels and cells producing the acute symptoms of allergic rhinitis. Then a priming process occurs in which the Inflammatory cells move to the nasal mucosa, leading to nasal congestion, sneezing and/or secretion (Platt , 2014).

The late-phase reaction: Symptoms reach its peak within 6-12 hours following the first exposure to the allergen, manifested as nasal blockage, however, sneezing and rhinorrhea may still be existed (Bernstein et al. , 2016).

Pathophysiology and Its Relevance to Therapy

Exposure to allergens in sensitized persons leads to discharge of inflammatory mediators through an IgE-mediated mechanism, producing AR symptoms as demonstrated in Figure 1. Continuous exposure to allergens leads to nasal airway hyperresponsiveness (NAHR), a hallmark of allergic rhinitis. NAHR is a pathophysiological condition wherein the reaction of the nasal airway to both allergens and inflammatory mediators (such as bradykinin and histamine) is exaggerated compared with ordinary