EFFECT OF LASER ACUPUNCTURE IN CHILDREN WITH BRONCHIAL ASTHMA

Thesis

Submitted for partial fulfillment of the master degree of pediatrics

By

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2010

LIST OF ABBREVIATIONS

AAI	:	Acute air way inflammation.
ACQ	:	Asthma control questionaire
AHR	:	Airway hyperresponsiveness
API	:	Asthma Predictive Index
BA	:	Bronchial asthma
BHR	:	Brochial hyper-responsiveness
BL	:	Bladder meridian
BT	:	Bronchial thermoplasty
CAM	:	Complementary and alternative medicine
cAMP	:	Cyclic AMP
cGMP	:	Cyclic GMP
CV	:	Conception Vessel meridian
EPR-3	:	Expert panel report-3
FEV1	:	Forced expiratory volume in one second
FEV1/ FVC	:	The percentage of the FVC expired in one second
FVC	:	Forced vital capacity
GINA	:	Global Initiative for Asthma
GV	:	Governing Vessel meridian
LI	:	Large Intestine meridian
LILR	:	Low level laser radiation
LLLT	:	Low level laser therapy
LN-A	:	Laserneedle acupuncture
LU	:	Lung meridian
Mg2+	:	Magnesium
MgSO4	:	Magnesium sulfate
PEAK	:	Prevention of early asthma in Kids
PEF	:	Peak expiratory flow
SLIT	:	Sublingual immunotherapy
SP	:	Spleen meridian
ST	:	Stomach meridian
TCM	:	Traditional Chinese medicine
USSR	:	Union State Soviet Republic.

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Acknowledgement

First I would like to thank **"ALLAH"** for every thing. This would not be achieved without the willing and support of ***"Allah"***

I would like to express my deepest gratitude to ***Professor Doctor/ Magda Yehia EL Seify*****,** professor of Pediatrics Faculty of Medicine, Ain Shams University for her constant help encouragement, meticulous constructive advice, support all through the whole work and for dedicating much of her precious time to complete this work.

I am also grateful to ***Professor Doctor/Nagwa Hassan Mohamed,*** Professor of Childhood Studies and, Head of the Researches and Applications of Complementary Medicine department, National Research Center, for her meticulous supervision. I consider my self fortunate to work under her supervision, her constant encouragement and constructive guidance were of paramount importance for the initiation, progression and completion of this work.

I am greatly honored to express my deep gratitude to ***Doctor/ Asmaa Al Husseiny Ahmed,*** lecturer of Pediatrics Faculty of Medicine, Ain Shams University. She gave me much of her time, experience and endless support.

I am also deeply grateful and would like to express my sincere thanks and gratitude to ***Doctor/Mahitab Morsy Hussein,*** assistant lecturer of Pediatrics Faculty of Medicine, Ain Shams University for her effort in performing the pulmonary function test.

Last but not least I would like to express my deepest thanks and gratitude to ***my husband and parents*** for their endless support to me.

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INTRODUCTION

Bronchial asthma is a major health problem and is associated with significant morbidity. The reported prevalence of bronchial asthma in children ranges from 1.6 % – 35% in different countries *(McCarney et al., 2004)*.

The global prevalence of bronchial asthma is high and represents a significant health care burden. Although bronchial asthma mortality seems to be decreasing in many countries, asthma – related deaths still occur and in many cases are avoidable. The bronchial asthma nomenclature in recent years moved away from a system based on disease severity toward one based on therapeutic methods and doses require to achieve control *(Fitz Gerald et al., 2010)*.

Public attention in the developed world has recently focused on bronchial asthma because of its rapidly increasing prevalence, affecting up to one in four urban children *(Martinez et al., 2006)*.

The lack of satisfactory success of current bronchial asthma therapy has resulted in an increasing number of patients seeking complementary and alternative medicine approaches to deal with their bronchial asthma. As a consequence, the search for effective low-risk non-drug strategies that provide a valuable adjunctive or alternative treatment in asthma

management is clinically attractive and relevant. There is much interest in complementary and alternative medicine, and its use in the management and treatment of asthma is growing at a significant rate *(Shi-Chuan., 2007)*.

Acupuncture is a part of traditional Chinese medicine and is widely used for the treatment of chronic illnesses, including bronchial asthma *(Giovanni et al., 2006)*.

The chronicity of bronchial asthma and the fear of steroid therapy lead many asthmatic patients to search for alternative methods of treatment such as acupuncture *(Joos et al., 2000)*.

In the western countries, acupuncture has become increasingly popular within the last century has aroused much interest in the scientific and medical communities *(Mayer, 2000)*.

The therapeutic effect of acupuncture can be achieved by a variety of stimuli including electricity, temperature variation, needling, mechanical pressure and laser *(Frishman et al., 2009)*.

The noninvasive method of laser acupuncture is more acceptable to children and patients with needle phobia *(Gerhard, 2008)*.

AIM OF THE WORK

The study was designed to evaluate the effect of laser acupuncture application as a complementary modality in the treatment of children with chronic bronchial asthma.

Bronchial Asthma

Definition

Asthma is a chronic inflammatory disorder of the airways characterized by an obstruction of airflow, which may be completely or partially reversed with or without specific therapy.

Airway inflammation is the result of interactions between various cells, cellular elements, and cytokines. In susceptible individuals airway inflammation cause recurrent or persistent bronchspasm which causes symptoms including wheezing, breathlessness, chest tightness, and cough, particularly at night or after exercise.

Airway inflammation is associated with airway hyperactivity or bronchial hyperresponsiveness (BHR) , which is defined as the inherent tendency of the airways to narrow in response to various stimuli *(Girish et al., 2009)*.

The Expert Panel Report 3 (2007) simplified the definition to the following: Bronchial Asthma is a common chronic disorder of the airways that is complex and characterized by variable and recurring symptoms, airflow obstruction, BHR, and an underlying

inflammation illustrated in (**figure-1**).The interaction of these features of bronchial asthma determines clinical manifestations and severity of asthma and the response to treatment *(NHLBI, 2007)*.

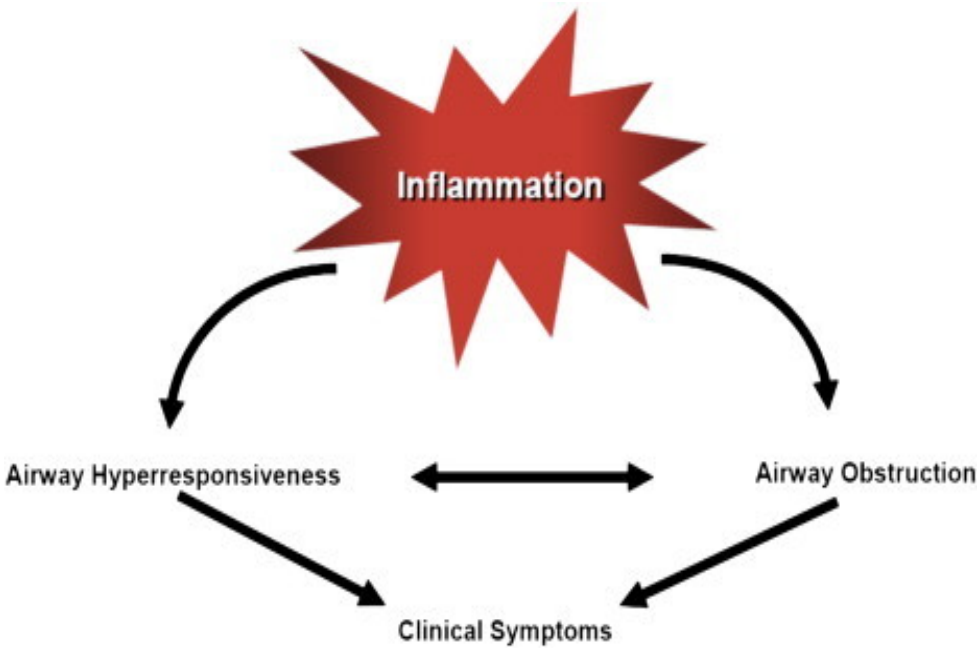

Figure (1): Simple definition of bronchial asthma *(NHLBI, 2007)*.

Epidemiology

Prevalence of Pediatric Bronchial Asthma in Egypt

In Egypt, It has been estimated that bronchial asthma affect up to 8% of the Egyptian children. Seasonal asthma was found to be the cause of 38.4% of acute attacks *(Bassili et al., 1998)*. In Egypt a prevalence of 8.2 % among school children aged 5-15 years old was reported *(El-Hefney et al., 1994)*.

Abdel Latif (2000) studied the prevalence of bronchial asthma among 2321 secondary school students (13-15) year old in four randomly selected districts (Misr El-Gedida, Helwan Shoubra and Abassia) and he reported a prevalence of pediatric bronchial asthma of 5.6%. Also *El-Shafey (2006)* studied the prevalence of bronchial asthma in Cairo metropolitan and he reported a prevalence of bronchial asthma of 16.8%.

World wide prevalence of asthma

Bronchial Asthma affects 5-10 % of the population of an estimated 14-15 million persons, including 5 million children. The prevalence rate of exercise induced asthma is 3-10% of the general population, if persons who do not have bronchial asthma or allergy are excluded, but the rate increases to 12 – 15 % of the general population, if patients with bronchial asthma are included *(Smith et al., 2007)*.

About 300 million people worldwide have bronchial asthma and it has been estimated that a further 100 million will be affected by 2025 *(Masoli et al., 2004)*.

Bronchial Asthma is common in industrialized nations such as Canada, England, Australia, Germany