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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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بعض الوثائـــــــق الاصليـــــة تالفـــة

بالرسالة صفحات لم ترد بالاصل

STUDY OF NITRIC OXIDE METABOLITES IN INDUCED SPUTUM IN ASTHMATIC CHILDREN

Thesis

Submitted to the Faculty of Medicine
University of Alexandria
In partial fulfilment of the
Requirements of the degree of

Master of Pediatrics

By

ALLA EL DIN MOHAMED AHMED

MBBCh

Faculty of Medicine

University of Alexandria

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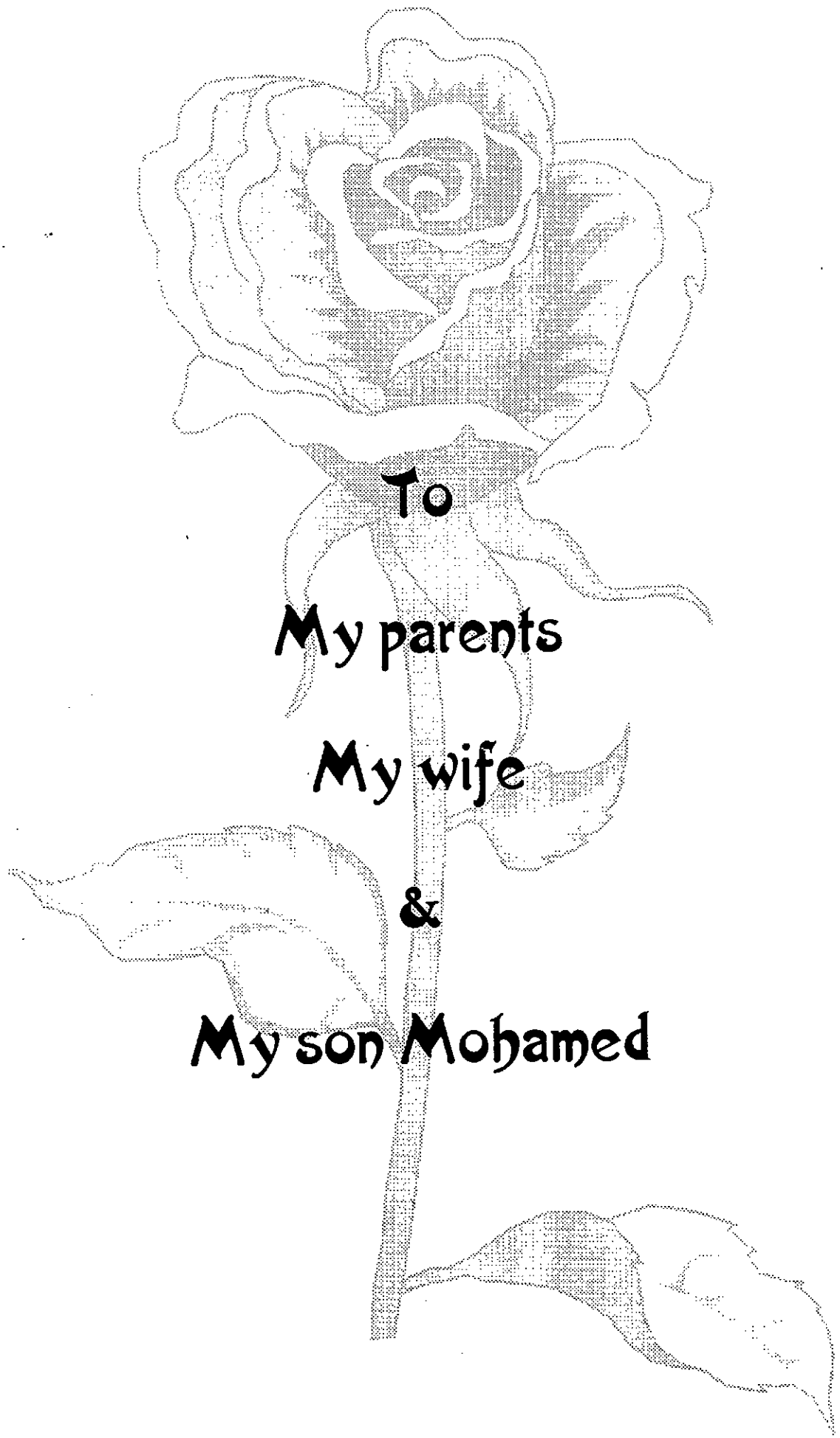
SUPERVISORS

Prof. Dr. Fatma Mostafa Kamal Badr El Din
Professor of Pediatrics,
Faculty of Medicine
University of Alexandria

Dr. Maged Mohamed Eissa
Assistant Prof .of Pediatrics,
Faculty of Medicine
University of Alexandria

Dr. Mohamed Naguib Dessoukey
Assistant Prof. of Medical Biochemistry,
Faculty of Medicine
University of Alexandria



To

My parents

My wife

&

My son Mohamed

Acknowledgement

Praise to "Allah", the Most Gracious and the Most Merciful Who Guides Us to the Right Way.

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LIST OF ABBREVIATIONS

AMP	: Adenosine monophosphate.
BAL	: Broncho alveolar lavage fluid.
BH_4	: Tetrahydrobiopterin.
Ca^{2+}	: Calcium ions.
cGMP	: Cyclic guanosine monophosphate.
cNOS	: Constitutive nitric oxide synthase.
DNA	: Deoxyribonucleic acid.
ECP	: Eosinophil cationic protein.
ELISA	: Enzyme Linked immuno sorbent assay.
eNO	: Exhaled nitric oxide.
F.B	: Foreign body.
FAD	: Flavin-adenine dinucleotide
FEV_1	: Forced expiratory volume in one second.
FMN	: Flavin-mononucleotide.
FVC	: Forced vital capacity.
GM-CSF	: Granulocyte macrophage-colony stimulating factor.
H &E	: Hematoxylin and Eosin.
IAR	: Immediate asthmatic response.
IFN	: Interferon.
IgE	: Immunoglobulin E.
IL	: Interleukin.
iNANC	: Inhibitory non-adrenergic non-cholinergic.
iNOS	: Inducible nitric oxide synthase.

IS	: Induced sputum.
L-NAME	: N-nitroarginine methyl ester.
L-NIO	: N-imino ethyl-L-ornithine.
L-NMMA	: N-monomethyl-L-arginine.
NANC	: Non adrenergic non-cholinergic.
NO	: Nitric oxide.
NO_2^-	: Nitrite.
NO_3^-	: Nitrate.
NOS	: Nitric oxide synthase.
OD	: Optical density.
PAF	: Platelet activating factor.
PBS	: Phosphate buffered saline.
SVCm	: Slow vital capacity method.
T.B	: Tuberculosis.
TBm	: Tidal breathing method.
TH_2	: Helper T lymphocytes.
TNFα	: Tumor necrosis factor alpha.

Contents

INTRODUCTION

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BRONCHIAL ASTHMA

Definition of bronchial Asthma:

Bronchial asthma is a multifactorial disease derived from the Greek Word "Asthmamatos", meaning difficulty in breathing and this was used for centuries to describe all types of shortness of breath.[1]

Based on current knowledge, a working definition of asthma is: "Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, particularly mast cells, eosinophils, T lymphocytes, macrophages, neutrophils and epithelial cells. In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. These episodes are usually associated with wide spread but variable air flow obstruction that is often reversible either spontaneously or with treatment. The inflammation also causes an associated increase in the existing bronchial hyper-responsiveness to a variety of stimuli".[2]

Epidemiology:

Asthma is the most common chronic disease of childhood throughout the world. The prevalence of asthma among Egyptian children

aged 3-15 years was estimated to be 8.2%.[3] The prevalence varies in different parts of the world with values in the United States of about 3-5% of all children[4] and as high as 15% in Great Britain.[5]

Asthma morbidity and mortality rates continue to rise despite of improved understanding of the pathophysiologic processes and treatment of the disease. Epidemiologic, physiologic and social factors appear to be associated with an increased risk of asthma. These include poverty, air pollution, large family size, bad housing, increased crowding index, indoor smoking and exposure to different indoor allergens.[6]

The immuno histopathologic features of asthma include:[6]

1. Denudation of airway epithelium.
2. Collagen deposition beneath the basement membrane.
3. Mast cell activation.
4. Inflammatory cell infiltration by eosinophils, neurtrophils and lymphocytes.
5. Odema-vasodilatation.

Inflammation in asthma:

Asthma is associated with a wide range of symptoms and signs, including wheezing, cough, chest-tightness, shortness of breath and sputum production. The symptoms and signs evolve from three basic characteristics that underlie the disease and its exacerbations:

- Airway obstruction.
- Airway hyperresponsiveness.
- Airway inflammation.