

TheEffect of Statinson Matrix Metalloproteinase 9in ChronicObstructive Pulmonary Disease

Thesis

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List of Contents

	<i>Page</i>
Introduction	1
Aim of the Work	4
Review of Literature:	
<i>Chronic Obstructive Pulmonary Disease (COPD)</i>.....	5
▪ Definitions	6
▪ Burden of COPD	7
▪ Risk Factors	13
▪ Pathogenesis, Pathology and Pathophysiology	21
▪ Clinical Features of COPD	39
▪ Investigations	44
▪ Staging of COPD	52
▪ Management of COPD	61
<i>Statins</i>.....	85
▪ History	85
▪ Chemistry	86
▪ Members	87
▪ Mechanism of action	90

▪ Statins and inflammation	91
▪ Absorption, fate and excretion	92
▪ Adverse effects	93
▪ Indications and uses	95
▪ Statin effects on pulmonary inflammation in COPD	97

Matrix Metalloproteinases (MMPs).....101

▪ Definitions	101
▪ Characteristics.....	102
▪ Tissue inhibitors of MMPs (TIMPs).....	104
▪ Members of MMPs.....	107
▪ Metalloproteinase regulation.....	109
▪ Structural properties of MMPs.....	111
▪ Matrix metalloproteinase9 (MMP-9).....	114

Subjects and Methods 123

Results 130

Discussion 147

Summary 159

Conclusions..... 162

Recommendations	163
References	164
Arabic Summary	—

List of Figures

Figure No.	Title	Page No.
(1)	Pathological Changes of the Central Airways in COPD	24
(2)	Pathological Changes of the Peripheral Airways in COPD	25
(3)	Normal spirogram and spirogram typical of patients with moderate COPD	47
(4)	GOLD guidelines advocate symptomatic assessment using the CAT or mMRC	60
(5)	Members of Statins	87,88
(6)	Structure of MMPs	113
(7)	The major sources of MMP-9 in the emphysematous lung	118
(8)	Possible role of MMP-9 in development of tissue remodeling and emphysema...	121
Results		
(9)	Comparison between studied groups as regard anthropometric data	131

(10)	Comparison between MMP-9 in cases and controls before and after treatment with Atorvastatin.....	133
(11)	Comparison between both studied groups as regard PFT parameters before treatment with Atorvastatin.....	136
(12)	Comparison between both studied groups as regard PFT parameters after treatment with Atorvastatin.....	137
(13)	Comparison between PFT parameters before versus after treatment with Atorvastatin among cases.....	138
(14)	Relation between serum MMP-9 and number of cigarette smoked per day	140
(15)	Relation between FEV1 and serum MMP-9 in cases.....	141
(16)	Relation between FEV1/FVC% and serum level of MMP-9 in cases.....	142
(17)	Relation between FEF25-75% and serum MMP-9 in cases.....	143
(18)	Sensitivity and specificity of MMP-9	146

List of Tables

Table No.	Title	Page No.
(1)	The Egyptian Society of Chest Diseases and Tuberculosis (ESCT) classification of COPD (2003)	54
(2)	Global initiative for Chronic Obstructive Lung Disease, 2013 classification	55
(3)	Modified Medical Research Council Questionnaire For assessing the severity of breathlessness	57
(4)	Initial pharmacologic management of COPD	74
(5)	Classification of Members of Matrix Metalloproteinases	107
Results		
(6)	Comparison between studied groups as regard general and anthropometric data ...	130
(7)	Comparison between studied groups as regard MMP-9	132

(8)	Comparison between both studied groups as regard PFT parameters before treatment with Atorvastatin	134
(9)	Correlations between MMP-9 versus different variables among cases.....	139
(10)	Correlations between MMP-9 versus different variables among controls	144
(11)	Validity of MMP-9 in prediction of COPD	145

List of Abbreviation

ASTEROID trial	A clinical trial published in 2006 that shows the effects of statins on atherosclerosis
BEC	Bronchial Epithelial Cells
BODE	Body mass index, Airflow obstruction, Dyspnea, and Exercise capacity
BTS	British Thoracic Society
CAL	Chronic Airflow Limitation
CAT	COPD assessment test
CD4,CD8	Cluster of Differentiation (is a glycoprotein expressed on the surface of T helper cells, regulatory T cells, monocytes and macrophages).
CHD	Coronary Heart Disease
COPD	Chronic Obstructive Pulmonary Disease
CRP	C-reactive protein
CT	Computed tomography
CYP3A4	3A4 isoform of cytochrome P450
Cyclic AMP	Cyclic Adenosine monophosphate
DALY	The Disability-Adjusted Life Year
ESCT	The Egyptian Society of Chest Diseases and Tuberculosis
ETS	Environmental Tobacco Smoke
FDA	Food and Drug Administration
FEF₂₅₋₇₅	Forced expiratory flow 25% to 75%.
FEV₁	Forced expiratory volume in first second.
FVC	Forced vital capacity

GM-CSF	Granulocyte-macrophage Colony Stimulating Factor
GTPase	Enzyme bind and hydrolyze guanosine triphosphate
GOLD	Global Initiative for Chronic Obstructive Lung Disease
H. influenza	Hemophilus influenza
HMG-CoA reductase	3-hydroxy-3-methylglutaryl coenzyme A reductase
HPS	Heart Protection Study
ICU	Intensive Care Unit
IL-1,6,8	Interleukin-1,6,8
IPF	Interstitial pulmonary fibrosis
KCO	transfer coefficient
KPa	Kilopascal (a unit of pressure measurement)
LDL	low density lipoprotein
LTB4	leukotriene B4
LVRS	Lung Volume Reduction Surgery
M2 receptor	Muscarinic receptor
MENA	Middle East and North Africa region
M. catarrhalis	Moraxella catarrhalis
mEPHX1	Microsomal epoxide hydrolase1
MMPs	Matrix Metalloproteinase
MT-MMPs	Membrane type Matrix Metalloproteinase
mMRC	Modified British Medical Research Council

NHANES III	The third National Health And Nutrition Examination Survey
NIPPV	Noninvasive intermittent positive pressure ventilation
PaO₂	Partial pressure of oxygen
PaCO₂	Partial pressure of carbon dioxide
PGs	Proteoglycans
PH	Pulmonary Hypertension
Pemax	Maximum expiratory pressure
PFT	Pulmonary Function Tests
Pimax	Maximum inspiratory pressure
ROC curve	Receiver Operating Charecteristic Curve
S.pneumoniae	streptococcus pneumoniae
SaO₂	Oxygen saturation
SREBPs	Sterol Regulatory Element Binding Proteins
TIMPs	Tissue Inhibitor metalloproteinases
TLCO	Carbon monoxide Transfer Factor
TGF-1	Transforming Growth Factor beta 1
TNF-α	Tumor Necrosis Factor alpha
ng	nanogram
μg	Microgram
V_A/Q	Ventilation/ Perfusion ratio
VN	vitronectin
WHO	World Health Organization
YLD	Years of Living with Disability

Introduction

Chronic obstructive pulmonary disease is a common preventable and treatable disease characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases(**GOLD, 2014**).

Chronic obstructive pulmonary disease (COPD) occurs as a result of the combined effects of smoking exposure and genetic susceptibility to the damaging effects of smoking.COPD is described as heterogenous syndrome of overlapping conditions such as chronic bronchitis,emphysema and bronchiolitis (**Vestibo et al.,2013**).

COPD is characterized by progressive, minimally reversible air flow limitation that results from varying combinations of parenchymal destruction (emphysema) and fixed small airways disease from smooth muscle hypertrophy and airway fibrosis (**Spurzemand Rennard. 2005**).

COPD is also a systemic disease with progressive muscle wasting of the skeletal and respiratory system, which further limits exercise capacity (**Gan et al., 2004**). Other systemic manifestations of COPD include coronary artery disease (CAD), osteoporosis and anaemia (**Barnes and Celli. 2009**). Smoking has been shown to account for 85% of cases