Study of bronchoalveolar lavage cytology after oral prednisone treatment in COPD exacerbations

thesis

Submitted for partial Fulfillment of Master Degree In chest disease & tuberculosis

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Abstract

COPD patients were chosen according to the ***"Global Initiative for Chronic Obstructive Lung Disease" (GOLD)*** that defines chronic obstructive pulmonary disease "COPD" as a preventable and treatable disease with some significant extra pulmonary effects that may contribute to the severity in individual patients. Its pulmonary component is characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases"

All patients were subjected to full history taking, careful general and local examination, routine laboratory investigations, chest x ray, arterial blood gas (ABG). bronchalveolar lavage cytology.

Key words

Budesonide – Interleukins - Respiratory Failure .

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LIST OF ABBREVIATIONS

ABG	Arterial Blood Gases
ACTH	Adrenocorticotropic Hormone
α1-*AT*	Alpha -1- Anti Trypsine
ATS	American Thoracic Society
ASM	Air way Smooth Muscle
BAL	Broncho Alveolar Lavage
BALF	Broncho Alveolar Lavage Fluid
BDP	Beclo Methasone Diprpionate
BUD	Budesonide
COPD	Chronic Obstructive Pulmonary Disease
CRH	Cortico Tropic Releasing Hormone
CSs	Corticosteroids
DPI	Dry Powder Inhaler
ECG	Electro Cardio Gram
ECP	Eosinophilic Catinic Protein
EGF	Epidermal Growth Factor
ERS	European Respiratory Society
FEV1	Forced Expiratory Volume In First Second
FVC	Forced Vital Capacity
FP	Fluticasone Propionate
GC-SF	Granulocytes Colony Stimulating Factor
GM-CSF	Granulocytes Macrophage Colony Stimulating Factor
GOLD	Global Initiative for Chronic Obstructive Lung Disease
Ics	Inhaled Corticosteroids
IL	Interleukins
LABAs	Long Acting Beta Agonist

LVRS	Lung Volume Reduction Surgery
MDI	Metered Dose Inhaler
MF	Mometasone Furonat
MIP	Macrophage Inflammatory Proteins
MMP	Matrix Metalo Proteins
NE	Neutrophil Elastase
NF-B	Nuclear Factor B
NICE	National Institute for heath and Excellence
NIPPV	Non Invasive Positive Pressure Ventilation
PaO_2	Partial arterial pressure of Oxygen
$PaCO_2$	Partial arterial pressure of Carbon dioxide
PDE-4	Phospho Di Esterase 4
RF	Respiratory Failure
TGF-B	Transforming Growth Factor B
TNF-α	Tumor necrosis factor alpha
V/Q	Ventilation Perfusion Ratio

STUDY OF BRONCHOALVEOLAR LAVAGE CYTOLOGY AFTER ORAL PREDNISONE TREATMENT IN COPD EXACERBATIONS

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AIM OF THE WORK

Study the effect of oral prednisone on differential cell count of bronchoalveolar lavage cytology in patients with COPD exacerbations.

Chapter I :
chronic obstructive pulmonary disease (COPD)

INTRODUCTION

Chronic Obstructive Pulmonary Disease **(COPD)** is a major public health problem. This disease is currently the fourth leading cause of chronic morbidity and mortality in united states and it is projected to rank fifth in 2020 in burden of disease caused world wide. ***(Lopez. et al; 2006)***

Patients with ***COPD*** frequently have **exacerbations,** which are an important cause of morbidity, mortality, and health care cost ***(Hurst, 2004).*** Although many patients are ultimately admitted, a substantial percentage is treated as outpatient.

(Aaron. et al., 2003).

In addition to antibiotics, bronchodilators, and oxygen there is strong evidence that ***systemic corticosteroids*** are effective in management of ***COPD*** **exacerbations** concerning improvement in lung function parameters, symptom scores, reduction in the risk of treatment failure and the length of hospital stay. ***(Maltais. et al; 2002)***

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

DEFINITION:

Celli and colleagues update defined ***COPD*** as "a preventable and treatable disease state characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive

and associated with an abnormal inflammatory response of the lungs to noxious particles or gases, primarily caused by cigarette smoking. Although COPD affects the lungs, it also produces significant systemic consequences" ***(Celli et al., 2007).***

According to the ***Global Initiative for Chronic Obstructive Lung Disease (GOLD)*** definition "***COPD*** is a preventable and treatable disease with some significant extrapulmonary effects that may contribute to the severity in individual patients. Its pulmonary component is characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases" ***(Lopez. et al; 2006)***

EPIDEMIOLOGY:

• ***COPD*** prevalence, morbidity, and mortality vary across countries and across different groups within countries but, in general, are directly related to the prevalence of tobacco smoking, although in many countries, air pollution resulting from the burning of wood and other biomass fuels has also been identified as a ***COPD*** risk factor.

• The prevalence and burden of ***COPD*** are projected to increase in the coming decades due to continued exposure to ***COPD*** risk factors and the changing age structure of the worlde population.

• ***COPD*** is a costly disease with both direct costs (value of health care resources devoted to diagnosis and medical management) and indirect costs (monetary consequences of disability, missed work, premature mortality, and caregiver or family costs resulting from the illness). ***(Tirimann PR; 1996)***

<u>RISK FACTORS:</u>

• Worldwide, cigarette smoking is the most commonly encountered risk factor for ***COPD.***

• The genetic risk factor that is best documented is a severe hereditary ***deficiency of alpha-1 antitrypsin.*** It provides a model for how other genetic risk factors are thought to contribute to ***COPD***.

• Of the many inhalational exposures that may be encountered over a lifetime, only tobacco smoke and occupational dusts and chemicals (vapors, irritants, and fumes) are known to cause ***COPD*** on their own.

• Indoor air pollution, especially from burning biomass fuels in confined spaces, is associated with increased risk for ***COPD*** in developing countries, especially among women***.(Celli BR et al; 2005)***