Relationship between severity of asthma And high sensitivity C – reactive protein

Thesis

Submitted for fulfillment of the Master Degree in Chest Diseases And tuberculosis

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABG arterial blood gas
ABPA allergic bronchopulmonary aspergillosis
ACE angiotensin converting enzyme
AHRQ Agency for Healthcare Research and Quality
ALT alanine aminotransferase
ATS American Thoracic Society
BDP beclomethasone dipropionate
BPT bronchial provocation test
CAMP Childhood Asthma Management Program
CBC complete blood count
CDC Centers for Disease Control and Prevention
CFC chlorofluorocarbon
COPD chronic obstructive pulmonary disease
COX-2 cyclooxygenase
CPAP continuous positive airway pressure
CT computer tomography
DHHS U.S. Department of Health and Human Services
DPI dry powder inhaler
ED emergency department
EIB exercise-induced bronchospasm
eNO exhaled nitric oxide
EPR Expert Panel Report
EPR 1991, EPR 1997 (EPR—2), EPR—Update 2002,
EPR—3: Full Report 2007 (this 2007 guidelines update)
ER emergency room
ERS European Respiratory Society
FDA U.S. Food and Drug Administration
FEF forced expiratory flow
FEF25–75 forced expiratory flow between 25 percent and 75 percent of the vital capacity
FeNO fractional exhaled nitric oxide

FEV1 forced expiratory volume in 1 second
FiO2 fractional inspired oxygen
FRC functional residual capacity
FVC forced vital capacity
GERD gastro esophageal reflux disease
GINA Global Initiative for Asthma
HFA hydrofluoroalkane (inhaler propellant)
HPA hypothalamic-pituitary-adrenal
ICS inhaled corticosteroid(s)
ICU intensive care unit
I**gE** immunoglobulin E
IVMg intravenous magnesium sulfate
LABA/LABAs long-acting beta2-agonist(s)
LTRA leukotriene receptor antagonist
MDI metered-dose inhaler
NAEPP National Asthma Education and Prevention Program
NCHS National Center for Health Statistics
NO nitric oxide
NSAID nonsteroidal anti-inflammatory drug
OSA obstructive sleep apnea
PCO2 partial pressure of carbon dioxide
PEF peak expiratory flow
RSV respiratory syncytial virus
RV residual volume
SABA/SABAs short-acting beta2-agonist(s) (inhaled)
SaO2 oxygen saturation
Th1, Th2 T cell helper 1, T cell helper 2
TLC total lung capacity
VC vital capacity
VCD vocal cord dysfunction

ABSTRACT

1. HS-CRP may be used to assess the severity of the disease and response to treatment.
2. HS-CRP may be used as a systemic marker of inflammatory process that occurs in patients with asthma.
3. HS-CRP level is recommended to be studied as a marker for development of exacerbation of asthma
4. HS-CRP level is recommended to be studied as follow up marker during treatment with ICS in stepwise management of asthma

Key words:

Reletioon between asthma end BSCRP

INTRODUCTION

Introduction

Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, Chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread, but variable, airflow obstruction within the lung that is often reversible either spontaneously or with treatment ***(GINA, 2011)***

C - reactive protein (CRP) was identified by Tilet and Francis (1930) in the plasma of patients with pneumonia, and was named for its ability to bind and precipitate the C-polysaccharide of pneumococcus. It is an alpha globulin with a molecular mass of approximately 110,000 to 140,000 Dalton's, and is composed of five identical subunits, which are noncovalently assembled as a cyclic pentamer. CRP is synthesized in the liver and is normally present as a trace constituent of serum or plasma at levels less than 0.3 mg/dl , Its physiological roles are numerous and varied, but with several functions similar to those of immunoglobulin's, CRP appears to function in host defense. **(Carlson et al., 2005)**

Serum levels of the well-known inflammatory marker C-reactive protein (CRP) can be simply and inexpensively measured in order to assess systemic inflammation. **(Pepys and Baltz, 1983)**

However, standard assays for CRP, with a lower detection limit of 3–8 mg/ L Lack the sensitivity required to determine levels of inflammation the normal range. **(Ridker, 2001)**

High- sensitivity assays for CRP (hs-CRP) have become available in clinical laboratories. Measurement of serum hs-CRP levels has suggested the involvement of low-grade systemic inflammation in several disorders, such as cardiovascular disease and diabetes mellitus. **(Tracy, 1998)**

Furthermore, a recent population- based study showed associations of increased levels of serum hs-CRP with a high frequency of airway hyper responsiveness and low forced expiratory volume in one second (FEV 1) among subjects without heart disease **(Kony et al., 2004).**

Suggesting that systemic inflammation may be associated with respiratory impairment, another recent epidemiological study showed that elevated levels of hs-CRP correlate significantly with respiratory symptoms and with prevalence of nonallergic asthma**. (*Olafsdottir* et al., *2005)***

Asthma is characterized by airway hyperresponsiveness and inflammation, in which various cells (such as eosinophils, neutrophils, macrophages and T-lymphocytes), cytokines and mediators play a role. Beside local inflammation, systemic inflammation is present in asthma, as shown by increased levels of plasma fibrinogen and serum amyloid A **(Jousilahti et al., 2002)**

Thus hs-CRP could theoretically also be a useful tool for detecting systemic inflammation in asthma; indeed, an association between serum hs-CRP level and severity of asthma has been suggested **(*Sävykoski* et al., *2004)***

AIM OF THE WORK

Aim of the work

The purpose of this study is to evaluate of high sensitivity C -reactive protein in asthmatic patients in relation to asthma severity.

REVIEW OF LITERATURE