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Research Article

ANALYSIS OF IMPACT OF METABOLIC SYNDROME IN ASTHMA AND COPD PATIENTS IN PAKISTAN

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Abstract:

Introduction: Bronchial asthma and COPD (Chronic Obstructive Pulmonary Disease) are obstructive pulmonary diseases that affected millions of people all over the world. These two illnesses have many similarities and many differences which may sometimes confuse therapists in the diagnostics and management of these diseases which affect more and more people every year worldwide. **Aims and objectives:** The basic aim of the study is to analyze the impact of metabolic syndromes in asthma and COPD patients in local population of Pakistan. **Material and methods:** This study was conducted at Children Hospital Complex and Institute of Child Health, Multan during 2018 with the permission of ethical committee of hospital. 100 patients, who were presented with COPD in the Hospital, were included in the study. After approval from ethical committee all the parents were informed for the purpose of the study and a written informed consent was taken from the patients. Their Waist Circumference, Glucose Level (mg/dL), Triglyceride level (mg/dL), High Density Lipoprotein level (mg/dL), Systolic & diastolic blood pressure was measured for the diagnosis of metabolic syndrome. **Results:** From 100 patients, it was observed that the minimum age was 36 years and maximum age was 65 years with mean and standard deviation of the age was 52.44 ± 7.83 years. The minimum glucose level was 80 mg/dL and maximum was 115 mg/dL with mean and standard deviation was 94.05 ± 11.15 mg/dL. The minimum triglyceride level was 100 mg/dL and maximum was 370 mg/dL with mean and standard deviation was 181.70 ± 88.03 mg/dL. **Conclusion:** The frequency of metabolic syndrome was found in 43.9% patients with chronic obstructive pulmonary disease. All effect modifiers have significant influence.

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INTRODUCTION:

Bronchial asthma and COPD (Chronic Obstructive Pulmonary Disease) are obstructive pulmonary diseases that affected millions of people all over the world. These two illnesses have many similarities and many differences which may sometimes confuse therapists in the diagnostics and management of these diseases which affect more and more people every year worldwide. Asthma is a chronic inflammatory disorder of the airways [1]. 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 early morning. These episodes are usually associated with widespread, but variable, airflow obstruction within lung that is often reversible either spontaneously or with the treatment [2].

Asthma is a serious global health problem with an estimated 300 million affected individuals. People of all ages are affected by this illness that, when uncontrolled, can place severe limits on daily life and is sometimes fatal. The prevalence of asthma is increasing in most countries. Clinical manifestations of asthma can be controlled with appropriate treatment. When asthma is controlled severe exacerbations should be rare. The clinical spectrum of asthma is highly variable, but the airway inflammation remains a consistent feature [3].

Chronic airway disease is one of the most common chronic diseases, which is responsible for current and future socioeconomic burden [4]. Asthma and chronic obstructive pulmonary disease (COPD) are major airway diseases and have unique distinctive features. However, clinicians often encounter patients presenting overlapping symptoms of both diseases. Now asthma-COPD overlap syndrome (ACOS) is widely used to describe such a condition sharing both features of asthma and COPD. ACOS is simply defined as coexistence of incompletely reversible airway obstruction and airway hyper-responsiveness [5].

Aims and objectives

The basic aim of the study is to analyze the impact of metabolic syndromes in asthma and COPD patients in local population of Pakistan.

MATERIAL AND METHODS:

This study was conducted at Children Hospital Complex and Institute of Child Health, Multan during 2018 with the permission of ethical committee of hospital.

Data Collection

100 patients, who were presented with COPD in the Hospital, were included in the study. After approval from ethical committee all the parents were informed for the purpose of the study and a written informed consent was taken from the patients. Their Waist Circumference, Glucose Level (mg/dL), Triglyceride level (mg/dL), High Density Lipoprotein level (mg/dL), Systolic & diastolic blood pressure was measured for the diagnosis of metabolic syndrome. Effect modifiers like age, gender and BMI were addressed through stratification of data. All the data was collected through a well-defined Performa. (Attached)

Statistical analysis

All the collected data was entered into SPSS version 16. Numerical variables i-e age, Waist Circumference, Glucose Level (mg/dL), Triglyceride level (mg/dL), High Density Lipoprotein level (mg/dL), were presented by mean \pm SD. Categorical variables i-e gender, metabolic syndrome were presented as frequency and percentage.

RESULTS:

From 100 patients, it was observed that the minimum age was 36 years and maximum age was 65 years with mean and standard deviation of the age was 52.44 ± 7.83 years. The minimum glucose level was 80 mg/dL and maximum was 115 mg/dL with mean and standard deviation was 94.05 ± 11.15 mg/dL. The minimum triglyceride level was 100 mg/dL and maximum was 370 mg/dL with mean and standard deviation was 181.70 ± 88.03 mg/dL. The minimum High Density Lipoprotein level was 30 mg/dL and maximum was 58 mg/dL with mean and standard deviation was 46.22 ± 9.03 mg/dL (table 01).

Table 01: Distribution of Metabolic Syndrome

Metabolic Syndrome	Frequency	Percent
Yes	65	43.9%
No	83	56.1%
Total	148	100.0

By using chi-square test it was found that presence of metabolic syndrome was significantly associated with age group with p-value = 0.005. Significant association was found between the presence of metabolic syndrome and gender with p-value = 0.001 (table 02).

Table 02: Stratification with respect to Age

Age	Metabolic Syndrome		Total	P-value
	Yes	No		
< 40 years	6	0	6	0.005
> 40 years	59	83	142	
Total	65	83	148	

Chi-square test was applied

DISCUSSION:

From 148 patients, it was observed that the minimum age was 36 years and maximum age was 65 years with mean and standard deviation of the age was 52.44 ± 7.83 years. The minimum waist circumference was 70 cm and maximum was 114 cm with mean and standard deviation was 90.24 ± 13.80 cm. The minimum glucose level was 80 mg/dL and maximum was 115 mg/dL with mean and standard deviation was 94.05 ± 11.15 mg/dL [6].

MetS was present in 37.8 % COPD patients. The frequencies of MetS in patients with GOLD stages I, II, III, and IV were 33.3 %, 48.8 %, 31.6 %, and 23.1 %, respectively. MetS frequencies were not significantly different between GOLD stages [7,8]. The multivariate logistic regression analysis revealed leukocyte count and CRP level as significant independent predictors of the presence of MetS in COPD patients (OR =1.321, 95%CI: 1.007-1.628, p =0.009 and OR =1.184, 95%CI: 1.020-1.376, p =0.027 respectively) [9].

The presence of MS was 38.3% of the COPD patients (p<0.05). The presence of MS is associated with significantly worse cough, sleep and mood (p<0.02) and higher total CAT score (p=0.035). Average BMI is 28.17. There is a correlation between the presence

of MS and exacerbations of COPD last two years (p=0.02) and no correlation between the pulmonary function presence of the metabolic syndrome [10].

CONCLUSION:

The frequency of metabolic syndrome was found in 43.9% patients with chronic obstructive pulmonary disease. All effect modifiers have significant influence.

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