ORIGINAL ARTICLE

Blood Eosinophilia in Acute Chronic Obstructive Pulmonary Disease Exacerbation Patients

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ABSTRACT

Aim: To determine the prevalence of blood eosinophilia in patients of chronic obstructive pulmonary disease with acute exacerbation.

Study Design: Retrospective/observational

Place and Duration: District Headquarter Teaching Hospital Haripur, March 2019 - March 2020

Methodology: Total 124 patients of both genders presented with acute COPD exacerbation were enrolled in this study. Patients ages were ranging from 20 to 70 years. Detailed demographics including age, sex, body mass index and disease duration were recorded after taking informed consent. Blood eosinophil count >300µL was considered as eosinophilia. Data was analyzed by SPSS 24.0.

Results: There were 78 (62.90%) male and 46 (37.10%) female patients with mean age 54.85±10.66 years. Blood eosinophilia was found in 38 (30.65%) patients while 86 (69.35%) patients had blood eosinophil level <300µL.

Conclusion: It is concluded that elevated blood eosinophilia in acute exacerbation COPD patients was found in 30.65% patients.

INTRODUCTION

Eosinophilic inflammation has not been as clearly seen in asthma for the role of chronic obstructive pulmonary diseases (COPD), but recently attracted considerable interest. Several studies combine eosinophils from high blood and COPD with subsequent incidents. The results of those studies are very uncertain since a higher rate of exacerbations[1-2] has been reported by some researchers, whereas others have less frequent aggravation[3] and some show no relationships[4]. Blood eosinophils were also related to longer hospital stays and higher mortality risk[5], but some did not demonstrate a mortality differential[6]. More recently, the relationship of blood eosinophils and systemic steroid responses during a significant aggravation of COPD was also increasingly studied, and studies have used blood eosinophils as guiding principles for steroid treatment[7-8].

In a large number of COPD patients in various studies the prevalence of blood eossinophilia was confirmed to be a marker of eosinophilic inflammation and its clinical properties[9-10]. Study by K. Hasegawa and Carlos A et al reported that 17% of patients with COPD, had blood eosinophilia (alternative cut-off level) (to 2%) were registered elevated to eosinophilic count (to 40%)[11]. In a study by Price D et al reported 10% of COPD patients had blood eosinophilia[12].

We conducted present study with aimed to examine the prevalence of blood eosinophilia in patients presented with acute COPD exacerbation.

MATERIALS AND METHODS

This retrospective/cross-sectional study was conducted at District Headquarter Teaching Hospital Haripur, March 2019 - March 2020. Total 124 patients of both genders presented with acute COPD exacerbation were enrolled in this study. Patient's ages were ranging from 20 to 70 years. Detailed demographics including age, sex, body mass index and disease duration were recorded after taking informed consent.Patients with bronchial asthma, patients with drug resistant tuberculosis and those with no consent were excluded from this study.

Blood sample was taken from all the patients and sent to laboratory to examine the blood eosinophil level. Blood eosinophil count >300µL was considered as eosinophilia. All the data was analyzed by SPSS 24.0.

RESULTS

There were 78 (62.90%) male and 46 (37.10%) female patients with mean age 54.85±10.66 years. Mean BMI of all the patients was 23.26±2.74 kg/m^2. Mean duration of disease was 10.28±4.66 years. (Table 1)

Table No 1: Baseline details of all the patients

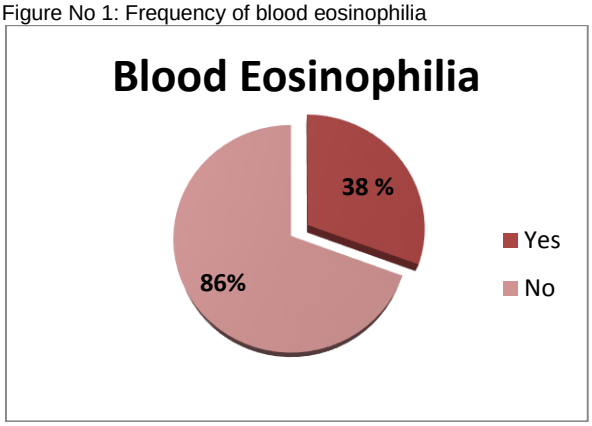
Variables	Frequency No.	%age
Mean Age (Yrs)	54.85±10.66	-
Mean BMI (kg/m)	23.26±2.74	-
Disease Duration	10.28±4.66	-
Gender		
Male	78	62.9
Female	46	37.1

We found that 38 (30.65%) patients had blood eosinophil count >300µL while 86 (69.35%) patients had blood eosinophil level <300µL. (Table 2)

Variables	Frequency No.	%age
Blood eosinophil count		
>300 µL	38	30.65
<300µL	86	69.35

According to the frequency of blood eosinophilia 30.65% patients with acute COPD exacerbation had blood eosinophilia. (Figure 1)

Figure No 1: Frequency of blood eosinophilia



DISCUSSION

The heterogeneous condition of the chronic obstructive pilmonary disease (COPD) is variable with patients having pathophysiological and clinical characteristics[13]. COPD clinical syndrome consists of a variety of phenotypes, including a group of eosinophilic inflammatory airways patients[14]. Corticosteroid reactivity in COPD was seen in combination with airway eosinophilia. During COPD exacerbations, peripheral blood counts were recognised as a replacement marker for airway eosinophilia and represent the magnitude of the exacerbation. Blood eosinophilic counts can be used to direct systemic treatment of corticosteroids during an exacerbation of COPD that decreases overall exposure to systemic corticosteroids without negatively affecting treatment outcomes[15]. We conducted present study with aimed to examine the prevalence of blood eosinophilia in patients presented with acute COPD exacerbation. In this regard total 124 patients were enrolled majority 62.9% patients were male and mean age of all the patients was 54.85±10.66. Majority of patients were ages between 40 to 60 years. These results were comparable to many of previous studies in which male patients population was high more than 60% and majority of COPD patients were ages above 50 years[16,17].

In present study we found that 30.65% patients with acute COPD exacerbation had blood eosinophilia while 69.35% patients had blood eosinophil count <300µL. These results showed similarity to many of previous studies in which blood eosinophilia in acute exacerbation COPD patients was 10% to 40%[17,18]. A study conducted by Ahmad W et al[19] regarding frequency of blood eosinophilia in patients with acute exacerbation COPD, in their study out of 139 patients blood eosinophilia was present in 33 (23.74%) patients.

Another study by Jabarkhil A et al[20] reported that blood eosinophilia was found in 13.2% patients out of 811 COPD patients. Elevated blood eosinophil level in acute exacerbation COPD patients predicted better clinical outcomes as compared to low eosinophil count. A prospective/observational study conducted by Wu HX et al[21] demonstrated that patients with low count of blood eosinophil had poor clinical outcomes in acute exacerbation chronic pulmonary disease patients as compared to elevated >300 µL blood eosinophil patients.

CONCLUSION

We concluded from this study that elevated blood eosinophilia in acute exacerbation COPD patients was found in 30.65% patients.

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