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Evaluation of prevalence and symptoms in patients with eosinophilia using peripheral smear method: A hospital based study

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Abstract

Background: Mild or moderate increase in the blood eosinophil count is observed in various conditions. The present study aimed to evaluate the prevalence and symptoms in patients with eosinophilia.

Materials and Methods: The study was done in Department of Pathology, Government Medical College, Thrissur, Kerala. Total 116 patients were included in the study based on the inclusion and exclusion criteria. All the patients were explained study procedure and informed consent was obtained. Patient's demographic and clinical data was collected. Blood samples of all the patients were analysed for eosinophil count. The data was expressed in number and percentage.

Results: Maximum number of patients were of the age between 41-50 years. Males were more compared to females. Fever was the most common symptom compared to others. 69 patients showed mild eosinophilia compared to other types.

Conclusion: The study showed middle age with male sex is more prone to eosinophilia. Fever and cough are the most common symptoms.

Keywords: Blood, eosinophilia, age, gender, fever, cough

Introduction

Mild or moderate increase in the blood eosinophil count detected from the differential leukocyte count may be met with during routine health screening as an isolated laboratory abnormality without an apparent association with the disease or as an epiphenomenon during a diagnostic work up for an illness [1-3]. However in the modern literature, a little work has been done in the field of blood eosinophilia. In patients with eosinophilia, it is prudent to have a thorough investigation performed to diagnose and rule out underlying systemic disease [4, 5]. The diagnostic work up of patients with eosinophilia remains controversial as there are no definite symptoms and no definite cause can be diagnosed in most cases [6]. Around 400 cases of eosinophilia are detected every year at the Government Medical College Hospital, Thrissur. The present study is designed to evaluate the prevalence and symptoms in eosinophilia using peripheral smear method.

Materials and Methods

Study design and settings: The study was done in Department of Pathology, Government Medical College, Thrissur, Kerala. It was done for one year. Study protocol was approved by Institutional Human Ethics Committee.

Inclusion criteria

- Both gender.
- Eosinophil count more than 500/mm³.
- No other hematological disorders.

Exclusion criteria

- Critically ill.
- Recent infection.
- Any recent major surgery.

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Procedure

The study included total of 116 patients based on the inclusion and exclusion criteria. All the patients were explained study protocol and informed consent was obtained. The patient’s blood was collected and used for peripheral smear examination. Demographic, clinical and pathological data was recorded and analysed.

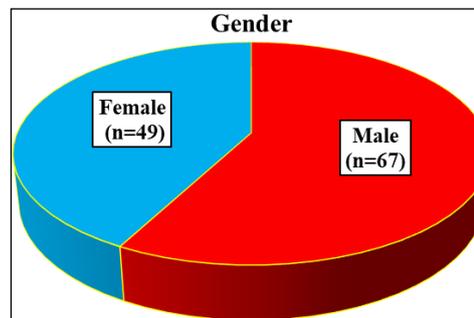
Statistical analysis: The data was expressed in number and percentage. Microsoft excel 2019 used for the calculation of percentage and drawing the graphs.

Results

The study included 116 patients. 29 patients were in the age group of 41-50 years. 26 patients were between 51-60 years. 3 patients in each had age between 1-10 and 81-90 years (Table-1). Male (n=67) were more compared to females (n=49) in this study (Graph-1). A total of 21 symptoms observed in the study population. Fever was the most common (n=29) symptom compared to others. 18 patients showed cough and 15 had breathlessness. 11 had chest pain and 10 had skin lesions. Least number of patients showed hemoptysis, hydrocele, headache, bleeding per rectum and history of snake bite (Table-2). 69 patients in mild, 34 in moderate and 13 in severe eosinophilia categories were observed in this study (Graph-2).

Table 1: Distribution of patients based on the age

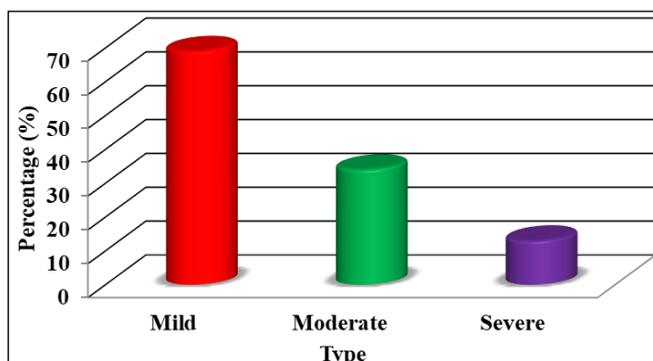
Age (Years)	Number	Percentage (%)
1-10	3	2.60
11-20	8	6.90
21-30	8	6.90
31-40	14	12.10
41-50	29	25.0
51-60	26	22.40
61-70	14	12.10
71-80	11	9.50
81-90	3	2.60



Graph 1: Distribution of patients based on the gender

Table 2: Distribution of patients based on the symptoms

Symptom	Number
Fever	29
Cough	18
Breathlessness	15
Chest pain	11
Skin lesion	10
Feature of psychosis	7
Edema	7
Neurological symptoms	6
Body pain	6
Vomiting	5
Abdominal pain	5
Alcohol abuse	3
Tiredness	2
Menorrhagia	2
Loss of appetite	1
Preoperative check up	1
Hemoptysis	1
Hydrocele	1
Headache	1
Bleeding per rectum	1
History of snake bite	1



Graph 2: Distribution of patients based on the eosinophil count

Discussion

The study aimed at elaborating the prevalence and symptoms associated with peripheral blood eosinophilia in a total of 116 patients attending Government Medical College Hospital. A detailed history was taken, a complete examination including general and systemic examination carried out, and a series of investigations including complete peripheral smear examination was done. Eosinophilia was more prevalent in males in our study. Majority fell into the age group of 41-50 years. Patients presented with multiple nonspecific symptoms involving various organ systems. In 31 out of 116 patients (26.7%), eosinophilia could not be attributed to any specific etiology. This figure corresponds to the 34% of patients with undetermined etiology in

Kobisade *et al.*'s study of 100 hospitalized patients with eosinophilia and 36% of patients with undetermined etiology in Brigden and Graydon's study of 225 outpatient cases of eosinophilia [7, 8]. In the study by Anshumakkar *et al.* This corresponded to 70% of patients. 4.3% of the cases of peripheral blood eosinophilia were attributed to asthma in our study. Asthma or other atopic diseases was the cause of eosinophilia in 13% of the cases according to previous study. In a recent study by Lombardi and Passalacqua on 1862 patients with eosinophilia, 80% of the cases were found to be associated with atopic diseases [10]. A study conducted by Bousquet J *et al.* on 43 patients with chronic asthma found that peripheral blood eosinophilia is associated with severity of asthma [11]. The present study also showed similar results. Exfoliative dermatitis was implicated to be the cause of eosinophilia in 5.2% of the patients in our study group. A number of dermatological conditions like exfoliative dermatitis, atopic dermatitis, eosinophilic cellulitis are associated with eosinophilia. Lombardi and Passalacqua [10] has attributed eosinophilia to skin diseases in 2.1% of the patients and Kobisade *et al.* [7], in 3% of cases. The study results showed fever is the most common symptom compared to others.

Conclusion

Eosinophilia is one of the commonest blood disorders. The study results concluded that eosinophilia is most common in middle aged males. The most common symptom among the patients was fever followed by cough and breathlessness. Early detection and initiation of treatment can reduce the progression of disease.

Conflict of interest: Nil.

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