ORIGINAL ARTICLE

A Study of Clinical Profile and Spontaneous Course of Eosinophilia

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Abstract

Aim of the study was evaluation of symptoms and signs in patients with eosinophilia, to try to find its etiology and to study the natural course of eosinophilia during the period of study. Fifty patients with absolute eosinophil count (AEC) more than 350/mm^3 or differential count more than 3% irrespective of their age, sex and medical condition were included. The patients were divided into mild (AEC-350 to 1500), moderate (1500 to 5000) and severe (>5000/mm3 of blood) eosinophilia. They underwent a series of routine and special hematological and biochemical investigations including bone marrow aspiration, serum IgE estimation, and pulmonary function tests. The patients were studied for a period of 3 months. Most of the patients (52%) fell in the category of mild eosinophilia. Minimum AEC at the entry of patients into the study was 600 and maximum was 22500. Commonest presenting symptoms were anorexia (40%), pain abdomen (38%), fever (32%), and breathlessness (30%). Etiology of eosinophilia was undiagnosed in 70% of the patients. Parasitism was more common than allergic rhinitis and bronchial asthma. On follow up investigations, eosinophilia resolved on its own even without specific antieosinophilic treatment. Extensive work up of patients was not associated with significant change in the management of any patients with eosinophilia. The etiology of eosinophilia remains unrevealed in majority of the patients. Extensive work up of patients with eosinophilia is not recommended.

Key Words

Eosinophilia,

Introduction

Mild or moderate increase in blood eosinophil counts detected from differential leucocyte counts may be encountered 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. Normal eosinophil count in the human blood varies from 0-350/ mm^3 of the blood (1). This amounts to about 1-3% of the differential leukocyte count.

Relatively little has been published in the modern literature on the etiology and clinical significance of eosinophilia in outpatients. The diagnostic work up of patients with eosinophilia remains controversial. The problem of eosinophilia becomes interesting in two important aspects. Firstly it is a cause of concern to the physician as there are no definite symptoms and no definite cause can be diagnosed in most cases. Secondly it is of immense concern to the anesthetist during preoperative evaluation of elective surgical cases and most such cases are referred to physician for management.

The present study is designed to evaluate the clinical profile and spontaneous course of patients with eosinophilia.

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Materials and methods

The study was conducted in Lady Hardinge Medical College and associated hospitals with investigative assistance from Safdarjung hospital during the period May 2002 -April 2003. A total of 50 patients with differential eosinophil count of more than 3% or an absolute eosinophil count of more than 350mm^3 were included in the study irrespective of their age, sex and medical condition. A detailed history including careful drug history, travel history, history of atopy was taken and complete examination including general and systemic examination was carried out. These patients had been subjected to a series of investigation. Complete hemogram was done including total and differential leukocyte count using Sysmex K-1000 automated autoanalyser. Patients with differential eosinophil count of more than 3% were subjected to absolute eosinophil count evaluation. Absolute eosinophil count was done manually by using Fuchs Rosenthal chamber. All patients were also subjected to peripheral smear to look for the presence of any heamoparasite. Besides the routine biochemistry, x-ray chest (P/A view), elisa for serum IgE by using Herichsen's kit, stool for ova and cyst (3 stool samples), bone marrow examination to detect the type of anemia, any hemoparasite or abnormal cells, pulmonary function tests, etc. were included. All the patients were followed up for a period of 3 months and repeat hemogram and absolute eosinophil count were performed.

The data obtained from the study was statistically analyzed by applying paired't` test to find the p value. The p value equal to or less than 0.05 was taken as significant.

Results

Fifty patients 20 males and 30 females (M:F=2:3) comprised the study group. Most of the patients (52%) were in the category of mild eosinophilia according to Rothenberg classification (1). Percentage of patients according to the category of eosinophilia has been shown in table-1.

Patients presented with multiple nonspecific complaints. Common presenting symptoms were anorexia (40%), pain abdomen (38%), fever (32%), breathlessness (30%), cough (22%), arthralgia (18%) and myalgia (12%). The minimum & maximum differential eosinophil count at the time of entry of subjects in to the study was 8% & 80%. Minimum and maximum AEC was 600 and 22500 with a mean value of 3347. Minimum and maximum AEC after 3 months follow up was 150 &7000 with mean value of 946 (table 2).

Tab 1. Percentage of cases according to category of eosinophilia

Absolute eosinophilic count	No. cases	%age of cases
351-1500(mild)	26	52%
1500-5000(moderate)	17	34%
>5000(severe)	7	14%

Tab 2. Comparison of First and Last Absolute Eosinophil Count

	Minimum	Maximum	Mean	S.D
AEC(First)	600	22500	3347.66	5157.33
AEC(Last)	150	7000	946.60	1049.5

(p value= 0.003) significant.

p value between initial AEC at presentation and after follow up for 3 months was significant by paired't` test i.e. AEC tends to resolve on its own over a period of time. Maximum and minimum hemoglobin values were 11gm% and 2.1gm%. Peripheral smear was normocellular normochromic in almost all the patients. Stool for ova and cyst was positive in 16% of the patients. Bone marrow examination was normocellular, normochromic in most of the patients. Pulmonary function tests were normal in most of the patients. Restrictive pattern was more common than obstructive pattern in patients with abnormal pulmonary function tests. In 70% of the patients, no etiological diagnosis could be made. Among those diagnosed, parasitism (16%) was more common than allergic rhinitis & bronchial asthma (6%). Two patients had tuberculosis, one patient had viral hepatitis and one patient had patchy- dermatous eosinophilic dermatitis (fig1)

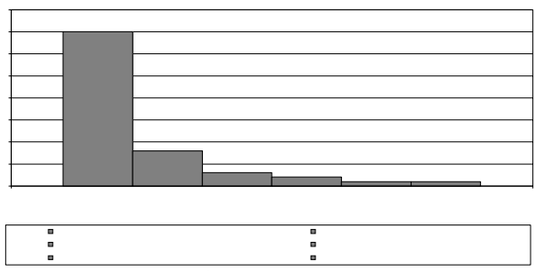

Fig 1: Distribution of patients according to etilogy of eosinophilia.

Discussion

Eosinophilia is commonly encountered during routine investigation. However in the modern literature, only little work has been done in the field of blood eosinophilia. Much debate exists about defining the absolute values of eosinophilia. Different authors have described different values of eosinophilia(1-3). In this article, Marc.E. Rothenberg classification[1] given in 1998 has been followed. According to this classification eosinophilia is divided into

Mild: 351-1500/mm^3 of blood.

Moderate: 1500-5000/mm^3 of blood.

Severe: >5000/mm^3 of blood.

Usually patients of eosinophilia are asymptomatic as reported in previous study (4). They are generally detected incidentally during routine hematological investigation. However In our study, most of the patients were symptomatic.

Atopy and parasitism are two important causes of eosinophilia. But etiology remains idiopathic in most patients (4-5). Allergy and atopy is described as the leading cause in developed countries (6-7) and parasitism in travellers returning from the developing countries (8). Lower down in the list of etiology of eosinophilia are the drugs, malignancies, and collagen vascular diseases. In our study we find parasitism to be more frequent than allergic rhinitis as the cause of eosinophilia. In about 70% of the patients, no diagnosis could be made. Considerable debate exists 'in the literature regarding optimal work up of patients with eosinophilia. Different authors have advised an organized approach to data gathering including a complete history and physical examination followed by an extensive laboratory evaluation to thoroughly investigate the possible causes. Various laboratory tests that have been recommended include a complete hematological profile, renal and liver function tests, erythrocyte sedimentation rate, and urinanalysis, stool examination for ova and cyst, chest x-ray, antinuclear antibodies, rheumatoid factor, serum IgE determination, radioallergosorbent or allergic skin testing and a possible bone marrow examination (9). The recommendations for such a extensive work up has been based in part on the earlier reports in the literature that suggested that up to 40% of patients with eosinophilia will be found to have a serious underlying condition such as malignancy, lymphoproliferative disorder, collagen disorder or parasitic infestation.

Although it is true that a variety of disorders are associated with eosinophilia, the majority of patients with these illnesses will have other systemic signs and symptoms, physical findings or abnormalities in the history that would prompt further investigations.

In the present study, detailed investigative work up including bone marrow examination was done but it did not result in the significant change in the management of any patient with eosinophilia. Rather eosinophilia resolved on its own without any specific antieosinophilic treatment. This is in accordance with other studies(5, 6, 10, 11). Therefore, the work up of patients with eosinophilia should be judicious, economical and sensible rather than the extensive work up as described in the literature.

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