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Etiological Evaluation of Pancytopenia with Special Emphasis On Megaloblastic Anemia

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ABSTRACT

Title: Etiological evaluation of pancytopenia with special emphasis on megaloblasticanemia.
Objective: The aim of this study was to define the frequent cause of pancytopenia.
Material and Method: It was prospective study comprise of 100 patient evaluated for pancytopenia by detail clinical history, complete hemogram, peripheral smear and bonemarrow aspiration whenever required.
Results: 100 patients studied, age range vary from 1 to 95 yr with 1.6 :1 male – female ratio. The common cause of pancytopenia were megaloblastic anemia (45%) .In megaloblastic anemia majority of patients were vegetarians and most of the patients show MCV >100 & on peripheral smear examination shows macrocytosis with hypersegmented neutrophil.
Conclusion: Megaloblastic anemia is the most common etiology for pancytopenia in India. Vegetarian dietary habits may be important associated feature. MCV and peripheral smear findings are most important tool to diagnose megaloblastic anemia.

Keywords : Pancytopenia, Megaloblastic anemia

Introduction:

Pancytopenia is very common hematological condition encountered in routine clinical practice. Pancytopenia means a disorder in which all blood elements (red blood cells, white blood cells and platelets) are decreased than normal.[1] The spectrum of primary and secondary disorder that affect the bone marrow may manifest with pancytopenia.[2] Various factors encompassing geographical distribution and genetic disturbances may cause variation in the incidence of disorders causing pancytopenia. [3, 4]

Material and Method:

The present prospective study was undertaken for a period of 2 years from September 2009 to September 2011. Patients of all age groups and both sexes were included. A detailed history and physical examination was done at admission. Case selection was based on clinical features and supported by laboratory evidence of all 3 of the following: hemoglobin, <10 g/dL; total leukocyte count (TLC), <4,000 / �ῢL; platelet count, <150,000/ �ῢL.

Patients on cytotoxic drugs, chemotherapy or radiotherapy were excluded. Anticoagulated blood processed through automated hematology analyzer; and various hematological parameters were obtained. Peripheral smear was stained by Leishman stain for all the cases and examined in detail. Bone marrow aspiration was subsequently carried out under aseptic precaution with written consent from the patient or guardian.

Results : 100 patients who presented with pancytopenia were studied. They consisted of 62 males and 38 females with a male-to-female ratio of 1.6:1. The age of patients ranged from 1to 95 years. [Table 1]

Table 1 : Age & sex distribution among patients with pancytopenia (n=100)

Age at presentation (years)	Patients		
	Male	Female	Total number
00 – 10	11	05	16
11 – 20	14	09	23
21 – 30	13	06	19
31 – 40	06	06	12
41 – 50	07	04	11
51 – 60	02	03	05
61 – 70	04	02	06
71 – 80	04	02	06
81 – 90	00	01	01
91 - 100	01	00	01
Total	62	38	100

Common presenting symptoms in our study were easy fatigability (79%) followed by fever (54%). In the present study pallor was commonest presenting sign in all the patients followed by spleenomegaly and had hepatomegaly. [Table. 2 & Table. 3]

Table 2: Symptoms of patients with pancytopenia

Symptoms	No of patients
Easy fatigability	79
Fever	54
Exertional breathlessness	52
Decreased appetite	48
Bodyache	44
Vomiting	40
Abdominal pain	39
Bleeding Tendencies	35
Weight loss	23
Cough	22
Palpitations	11
Lower limb edema	11
Loose stool	10

Table 3 : Clinical signs of patients with pancytopenia

Signs	Number of patients
Pallor	100
Splenomegaly	61
Hepatomegaly	43
Petechiae	22
Glossitis	15
Icterus	12
Edema feet	11
Lymphadenopathy	07
Ascites	02

In this study, on peripheral smear majority (33%) of cases had normocytic hypochromic RBCs morphology followed by macrocytic/megaloblastic (30%), microcytic hypochromic (20%), dimorphic picture (12%) and normocytic normochromic (5%).

The causes of pancytopenia with no of cases were arranged in Table .4. The most common cause of pancytopenia was megaloblastic anemia (45%) followed by malaria (14%), aplastic anaemia (11%).

Bone marrow examination was done in 50 patients out of which majority had hypercellular bone marrow (25 cases) followed by hypocellular (4 cases) and normocellular(21 cases).

Discussion:
100 cases of pancytopenia were studied. Age, gender-wise incidence, presenting complaints, peripheral blood picture, and various causes of pancytopenia were studied in all cases, and observations were compared with those in studies published in the literature.

The age of the patients ranged from 1 to 95 years, with a mean age of 32 years. Cytopenias were observed more in males (62%) than females (38%), with male-to-female (M: F) ratio of 1.6: 1. Age and sex distribution was compared with other studies as shown in Table 5.

Conclusion:
Megaloblastic anemia is the most common etiology for pancytopenia in India . Vegetarian dietary habits may be important associated feature. MCV and peripheral smear findings are most important tool to diagnose megaloblastic anemia.

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