



A CLINICAL AND ETIOLOGICAL PROFILE OF PANCYTOPENIA -ONE YEAR PROSPECTIVE STUDY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background- This is a one year prospective study of clinical and etiological profile of patients with pancytopenia in a tertiary care hospital. The study was conducted in the Department of Medicine, SDM college of Medical Sciences, Dharwad from January 2018 to December 2018.

Material & method: A total of 132 patients with diagnosis of pancytopenia were admitted during the period. Patients who fulfilled the criteria were enrolled for the study.

Results - About 66 patients [50%] were below 40yr of age. Majority were males 99 patients [75 %]. Most common cause was Folate deficiency seen in 92 patients [68.94%] followed closely by vitamin B12 deficiency seen in 88 patients.

Conclusion- The Folate and vitamin B12 deficiency are important and common cause of pancytopenia especially in younger age group in India

KEYWORDS : Pancytopenia, Megaloblastic Anemia, hematological examination

INTRODUCTION

Pancytopenia means decrease in all peripheral blood lineages. It is considered to be present when all three cell lines are below normal reference range.

A detailed history and deft physical examination along with focused laboratory investigations are required to establish diagnosis and management. Many disorders can cause pancytopenia, some of which are life threatening. Hematopoiesis in healthy adult takes place in bone marrow. The bone marrow is a dynamic organ that responds to ongoing needs. A balance between production, distribution and cellular destruction determines level of circulating blood cells.

Any disease that affects bone marrow can lead to pancytopenia. The etiology varies according to geographic location and genetic mutation [1].

The symptoms are fatigue due to anemia, susceptibility to infections due to leucopenia and excessive bleeding due to thrombocytopenia. [2]

The severity of pancytopenia and underlying pathology determine the management and prognosis of these patients [1]

Various Indian studies done regarding pancytopenia, many of them revealed Megaloblastic anemia as a major cause. [1] our study also produced similar results, thus indicating the importance of identifying the cause which can be easily treated.

Aim and Objectives

- 1] To study the clinical profile of pancytopenia in a tertiary care hospital
- 2] To evaluate the etiology of pancytopenia.

Materials and Methods

A one year prospective study was carried out between January 2018 to December 2018 at SDM College of medical sciences, Dharwad, Karnataka. All patients of age more than 14 yrs who fulfilled the criteria for diagnosis of pancytopenia were included in the study. Detailed clinical history and meticulous examination was carried out in all the patients. All possible relevant investigations to find the etiology were carried out. Bone marrow examination was done in selected patients where it was indicated.

Inclusion criteria

- 1] All patients aged more than 14 yrs who fulfilled criteria for

pancytopenia

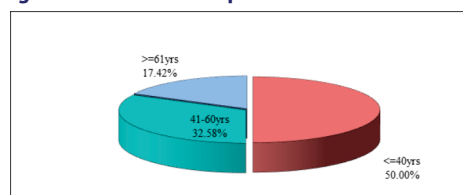
- 2] The criteria was patients with Haemoglobin less than 10 gm/dl, Total leukocyte count less than 4000/cmm and Platelets less than 1.5 lakhs/cmm were included.

RESULTS

Age distribution

Majority of patients in our study were in younger age group, less than 40yrs comprising 50% of cases.

Fig 1 – Age wise distribution of patients



Gender distribution

Table 1 : Gender distribution of patients

Gender	No of patients	% of patients
Male	99	75.00
Female	33	25.00
Total	132	100.00

There was male preponderance in our study with male comprising 99 patients [75% of cases]

Symptomatology

Distribution of patients by Common symptoms. The commonest symptom encountered in our study was loss of appetite followed closely by easy fatigability.

Table 2 – Distribution of patients based on symptoms

Common symptoms	No of patients	% of patients
Easy fatigability	45	34.09
Loss of appetite	47	35.61
Giddiness	19	14.39
Dyspnea	31	23.48
Bleeding	20	15.15

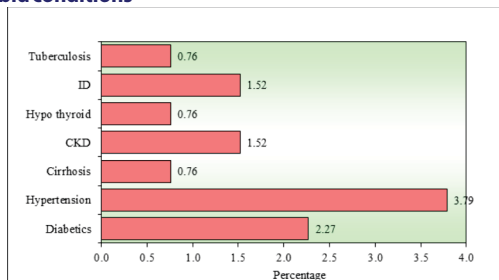
Table 3: Distribution of patients with reference to personal habits

Personal History	No of patients	% of patients
Alcohol	31	23.48
Gutka usage	22	16.67

Smoking	16	12.12
Diet-Vegetarian	67	50.76
Diet-Non vegetarian	65	49.24

Significant number of our patients were vegans [50.76 %], thus contributing to the high number of vitamin B12 deficiency cases encountered in our study

Fig 2 – Distribution of patients according to presence of co morbid conditions



As majority of patients were of younger age ,presence of comorbid condition were insignificant. Hypertension was the commonest comorbid condition encountered.

Table 4 : Distribution of patients by presence of signs

SIGNS	No of patients	% of patients
Pallor	127	96.21
Icterus	46	34.85
JVP	5	3.79
Pedal Edema	30	22.73
Knuckle Pigmentation	12	9.09

Pallor was the commonest finding and was found in 96.21 % of cases.

Table 5 : Distribution of patients based on CBC findings

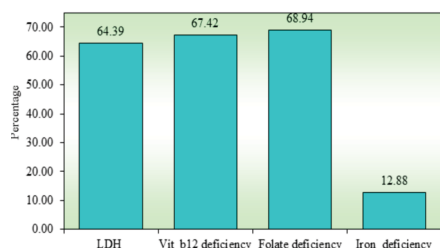
Status of CBC	No of patients	% of patients
Hb <4	36	27.27
Hb >4	96	72.73
TC	121	91.67
PLT	129	97.73
MCV	122	92.42
ESR	105	79.55
Reticulocytes low	61	46.21
Reticulocyte normal	45	34.09
Reticulocyte high	19	14.39

Severe anemia [Hb less than 4 gm]was seen in 36 patients .High MCV was seen in 122 patients. Reticulocyte count was low in 61 patients and normal in 45 patients.

Table 6: Distribution of patients by status of Peripheral smear

Status of Peripheral smear	No of patients	% of patients
Pancytopenia	118	89.39
Dimorphic	40	30.30
Macrocytic	41	31.06
Abnormal cells	0	0.00

Fig 3 Percentage distribution of vitamin b12 and folate defec iency



Folate deficiency was commonest cause of pancytopenia seen in 68.94 % followed by vitamin B12 deficiency.

Fig 4 Bone marrow findings in select group of pancytopenia patients

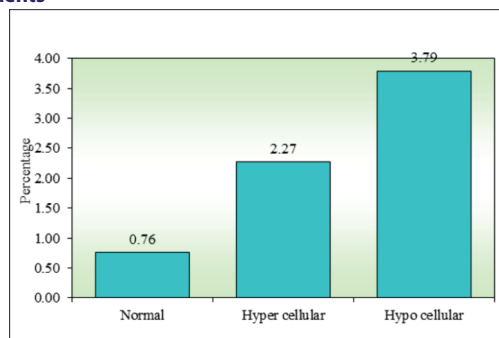
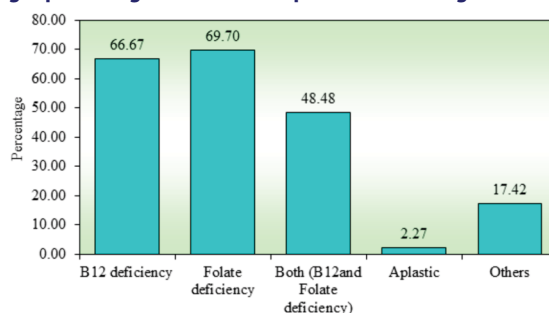


Table 7 : Distribution of patients by etiology

Diagnosis	No of patients	% of patients
B12 deficiency	88	66.67
Folate deficiency	92	69.70
Both (B12and Folate deficiency)	64	48.48
Aplastic	3	2.27
Others	23	17.42

Combined folate and vitamin B12deficiency was seen in 64 patients.

Fig 5- percentage distribution of patients according to etiology



DISCUSSION

Evaluation of pancytopenia requires careful history and meticulous examination Nutritional history, drug history and personal history should always be taken in to account. A thorough examination is of utmost importance, look for jaundice, clubbing, lymphadenopathy and splenomegaly.

Complete blood count should include level Red cell indices, peripheral smear , reticulocyte count. In addition liver function and kidney function tests , serum B12 and Folate level are important investigations.

A total of 132 cases of pancytopenia were studied in our study conducted at tertiary care hospital of North Karnataka. The majority of patients [50%] were aged less than 40yrs.This finding of younger age was similar to jain et al[6] .There was male preponderance [75 %]. This findings was also similar to many of the studies in India where they showed male dominance.

In our study Folate deficiency was seen in 92 cases[69.70 %] which is very similar to findings of Khunger et al [72 %] [8].

The commonest symptom was loss of appetite [34 %] followed by easy fatiguability [32 %].

50.76 % of the patients were vegans ,and thirty one patients [23.48%] were alcoholic. , which also highlights higher incidence of vitamin B12 and Folate in our study.

Presence of co -morbid conditions were minimal as majority of

patients in our study were of younger age.

Hepatomegaly was seen in nine patients and in one patients liver was shrunken. Splenomegaly was seen in thirteen patients.

Thirty six patients [27.27 %] had severe anemia with haemoglobin of less than 4gm and ninety six [72.73 %]patients had moderate anemia. Study by Dahake et al reported 39% of patients had severe anemia [3].

pallor was the most commonest sign seen in [96.31 %] followed by icterus seen in [34 %] of patients. Finding of pallor was similar to study done by Niazi et al [7].

The predominant picture was of pancytopenia where all three blood lineages appeared scarce. Reticulocyte count was low in sixty one patients and normal in forty five patients and high in nineteen patients

We found in our study Megaloblastic anemia was the commonest cause of pancytopenia . Among Megaloblastic anemia , Folate deficiency was the commonest cause seen in ninety patients [68.94%] followed closely by vitamin B12 deficiency seen in 89 patients [67.42 %]. This finding was similar to study by Khunger et al [72 %][8]Kand Tilak et al [68 %][1].

About Fifty three [40.15 %]patients had abnormal liver function test and deranged renal function was found in ten patients[7.58 %] of cases In our study Four patients were HIV positive [3.03%] and three patients were tested positive for hepatitis B virus [2.27 %]. These finding were similar to khundke at al.

Conclusion

Pancytopenia is not a disease in itself .It is a hematological manifestation of disease of varied etiology [4].

Mechanisms include bone marrow infiltration/ replacement, aplasia or ineffective hematopoiesis or blood cell destruction.[5]

The Megaloblastic anemia due to vitamin B12 and Folate deficiency is the leading cause of pancytopenia in India especially in younger population.

Significant proportions of cases were reversible with early diagnosis and intervention and had favorable outcome.

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