



A STUDY OF ETIOLOGY AND CLINICAL PROFILE OF PANCYTOPENIA IN ADULTS

Medicine

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ABSTRACT

background: pancytopenia is a relatively common hematological entity. it is a striking feature of many serious and life threatening illnesses. the severity of pancytopenia and the underlying pathology determine the management & prognosis. thus identification of etiology will help for better management and complete cure and better treatment of patients.

objectives:

1. to find out the underlying etiopathology of pancytopenia.
2. to study the clinical presentations in pancytopenia due to various causes.

methods: this study was a cross sectional study that was conducted at department of medicine of rajendra institute of medical sciences on one hundred pancytopenia patients who were evaluated clinically, along with hematological parameters and bone marrow aspiration.

results: among 100 cases studied ,most patients presented with generalized weakness. the commonest physical finding was pallor followed by splenomegaly and hepatomegaly. macrocytic anaemia was the predominant blood picture.. the commonest bone marrow finding was megaloblastic erythroid hyperplasia. the commonest cause for pancytopenia was megaloblastic anemia (60%), followed by haematological malignancy (20%) and aplastic anemia (12%). other causes of pancytopenia were hypersplenism, leishmaniasis.

conclusion: the commonest cause of pancytopenia in our study is megaloblastic anemia. this is in sharp contrast to the commonest cause of pancytopenia in various studies throughout the world where aplastic anemia has been the most common cause.

KEYWORDS

Aplastic Anaemia , Bone Marrow Aspiration, Megaloblastic Anemia, Pancytopenia.

INTRODUCTION

Pancytopenia is defined as reduction of all three formed blood elements below the normal range that is 'simultaneous presence of anemia,leucopenia and thrombocytopenia'. Pancytopenia exists in adults when haemoglobin is < 13.5 gm/dl in male and < 11.5 gm/dl in female, WBC count <4×10⁹/L and platelet <150×10⁹/L.^{1,2}

Any disease that affects the bone marrow can lead to peripheral pancytopenia. Hence, bone marrow examination is extremely helpful in evaluation of pancytopenia . Hence, in this study we tried to find out the underlying etiopathology of pancytopenias along with the clinical presentations in pancytopenia due to various causes.

MATERIAL AND METHODS

The present study was conducted in department of Medicine, Rajendra Institute of Medical Sciences from January 2018 to august 2018. A total of 100 cases were selected on basis of clinical features of pancytopenia and supported by laboratory evidences of pancytopenia which included decreased hemoglobin, leucocyte & platelet count from normal range on peripheral blood smear and bone marrow aspiration examination.

SELECTION OF CASES

Inclusion criteria -

Patients of age greater than or equal to 14 years who were admitted in the medicine department of Rajendra Institute of Medical Sciences from January 2018 to august 2018 with a diagnosis of pancytopenia which was made by clinical, haematological and by bone marrow aspiration were included in this study.

The criteria applied for pancytopenia were -

- Hb< 13.5 gm/dl in males and < 11.5 gm/dl in female,
- WBC count <4×10⁹/L
- Platelet < 150×10⁹/L

Exclusion criteria -

- Patients <12 years will be excluded.
- Patients on chemotherapy

RESULTS

A total of 100 cases of pancytopenia were studied. Bone marrow examination and various causes of pancytopenia were studied in all cases. The commonest cause of pancytopenia in various studies throughout the world has been aplastic anemia. This is in sharp contrast with the result of our study

(Table 1 and Figure 1) where the commonest cause of pancytopenia was found to be megaloblastic anemia.

Causes of pancytopenia					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	vitamin_b12_deficiency	60	60.0	60.0	60.0
	aplastic anaemia	12	12.0	12.0	72.0
	haematological_malignancy	20	20.0	20.0	92.0
	dimorphic anaemia	4	4.0	4.0	96.0
	hypersplenism	2	2.0	2.0	98.0
	kalaazar	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

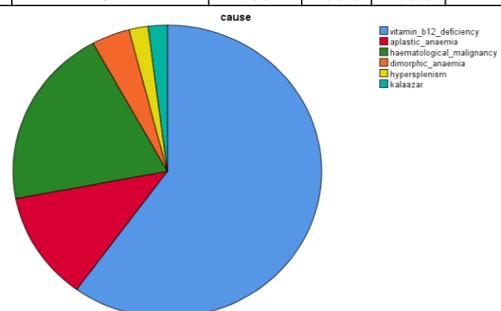


Table and Figure 1-Causes of pancytopenia

In our study, the commonest, mode of presentation (Table 2 and Figure 2) was generalised weakness (55%) followed by fever (33%).

Commonest presentatons					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	generalized_weakness	55	55.0	55.0	55.0
	dyspnoea	5	5.0	5.0	60.0
	bleeding_tendenc	5	5.0	5.0	65.0
	fever	33	33.0	33.0	98.0
	giddiness	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

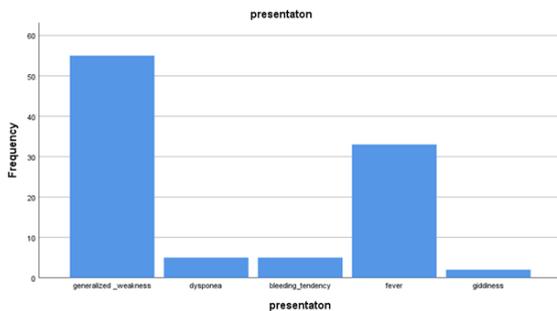


Table 2 and Figure 2-Commonest presentation in patients of pancytopenia

DISCUSSION

The commonest cause of pancytopenia in various studies throughout the world has been aplastic Anemia³. This is in sharp contrast with the result of our study where the commonest cause of pancytopenia was found to be megaloblastic anemia. Similar findings were observed in other studies done in India.

Incidence of megaloblastic anemia was 60% in our study. Incidence of 72% was reported by Khunger *JM et al*² and 74% by Gayathri BN⁴ et al and 68%, by Tilak et al⁵. All the above studies have been done in India, and they stress the importance of megaloblastic anemia being the major cause of pancytopenia. It is a rapidly correctable disorder and should be promptly notified.

Incidence of aplastic anemia varies from 10% to 52% among pancytopenic patients.. The incidence of hypoplastic anemia in our study was 12% which correlated with the corresponding figures in studies done by Khodke *K et al*² and Khunger *JM et al*⁶. Both observed an incidence of 14%. A higher incidence of 29.5%, was reported by Jha et al⁷.

In our study, the commonest, mode of presentation was generalised weakness (55%) followed by fever (33%).

This is in comparison to a study by Niazi M et al (2004)⁸ where generalized weakness (68.2%) was the commonest symptom, followed by fever (47.7%) and bleeding manifestations (33.7%). In the study by Thakkar BB et al (2013)⁹ generalised weakness (97%) was the commonest symptom, followed by fever (70%), weight loss (38%) and dyspnoea (32%).

In the study by Kumar DB et al¹⁰ (2012) generalized weakness (70.83%) was the most common symptom followed by fever (6.25%) and bleeding manifestations (6.25%).

CONCLUSION

The commonest cause of pancytopenia in our study and studies done in India is megaloblastic anemia. All these studies seem to reflect the higher prevalence of nutritional anaemia in Indian subjects. It is important to identify megaloblastic anemia as a cause of pancytopenia since it is a rapidly correctable disorder and can be easily treated.

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