International Journal of Medical Research Professionals
P-ISSN: 2454-6356; E-ISSN: 2454-6364
DOI: 10.21276/ijmrp

Original Research Article.

Evaluation of Clinical Profile and Etiology of Pancytopenia in Adults Above 18 Years

ShivJeet Yadav[1], H.P Paliwal[2*], Anchin Yadav[3], Aashish Sharma[1]

[1]Post Graduate, [2*]Professor & Unit Head, [3]Assistant Professor,
Department of Medicine, Mahatma Gandhi Medical College, Jaipur, Rajasthan, India.

ABSTRACT

Background: Pancytopenia is an important challenge in our routine clinical practice by hematological entity. There are different swing in its pattern, treatment procedures, and outcome. The aim of this study to evaluated the etiological & clinical profile of pancytopenia in adults above 18 years and its better understanding.

Material & Methods: A Prospective Hospital Based Study conducted on 100 Cases in the age group above the 18 years with pancytopenia attended in medical OPD in MGMCH, Jaipur during the period of December 2015 onwards. Patient showing parameters as haemoglobin < 9 g/dl, TLC <4X10^9 and Platelet count < 140X10^9/ L with reference to age and geographical areas were included in this study.

Results: Our study showed that the 55% incidence of pancytopenia was present in18-35 years of age group and male to female ratio was 1.7:1. All patients have clinical presentation was pallor, followed by 96% generalized weakness, 92% anorexia, 91% fatigability. The incidence of macrocytic anaemia was (67%) more in peripheral blood film and normocellularity is the commonest association constituting 71% followed by Megakaryocytic (21%) in bone marrow examination.

Conclusion: The physical findings and peripheral blood picture provides precious information in the work of pancytopenia patients. Complete hematological examination including bone marrow aspiration should be done in pancytopenia patients to recognize and diagnose this disease early so that proper intervention and medical treatment of these patients can be done.

Keywords: Pancytopenia, Hematological Examination, Bone Marrow Examination, Macrocytopenia, Anaemia.

***Correspondence to:**

Dr. H.P Paliwal,
Professor & Unit head, Department of Medicine,
Mahatma Gandhi Medical College, Jaipur, Rajasthan, India.

Article History:

Received: 12-11-2017, **Revised:** 09-12-2017, **Accepted:** 01-01-2018

Access this article online	
Website: www.ijmrp.com	Quick Response code
DOI: 10.21276/ijmrp.2018.4.1.058	

INTRODUCTION

This hematological condition is generally prompt by marrow transplant or failure but is sometimes sequence on spleen pooling or shattering of mature cells in peripheral blood. In clinical practice, cytotoxic or in immuno-suppressive drug were most frequently used they may lead to pancytopenia.

Various disease processes may affect the bone marrow by primarily or secondary, it is attributed to life threatening complications such as pancytopenia. These types of conditions may varying with depending of environmental factor such as age of patients, nutrition of patients and incidence of infections, may proceed to pancytopenia disease.[1] The prognosis of these type of patients was depend upon the management of extremity of disease and concealed pathology.[2]

The variation in the pattern of disease has been assigned to differences in methodology and rigidity of identification criteria and other demographic parameters. The prevalence of aplastic anemia is high level in Asian region than in the West region. It appears to be 2 to 3 times more common in Asia than in Europe.[3]

The exact prevalence of aplastic anemia is not known due to lack of epidemiological study in our country. However, in a hospital based study, it is known that 20-40% of pancytopenic patients are diagnosed as AA in referral centres.[4]

Destruction of all three types of cells may be a disclosure of wide range of disorders which can affect the bone marrow by primarily or secondarily. The presenting complains are generally determinable to anemia or thrombocytopenia. RBC survives much prolonged duration than platelets or neutrophils. Thus, anemia develops steadily (unless there is consequential bleeding) and the classic symptoms may not be marked in the initial phase such as tiredness, fatigue, puffiness of face, oedema, lassitude, and effort intolerance.[5] In thrombocytopenia typical features in skin and mucous membranes were mucocutaneous bleeding with petechial hemorrhages. In severe bone marrow failure the indicated the platelet count <20 x 10^9/l with presence of spontaneous bleeding. Leukopenia is a more serious life threatening state that is an uncommon of beginning appearance, in its following course.

Infections commonly occurred due to commensally organisms of the skin or gastrointestinal tract. Sore throat or chest or soft tissue infection response to antibiotics is incomplete which are classical symptoms of neutropenia.[6]

Bone marrow biopsy plays important role in finding out the etiology of pancytopenia. Therefore, evaluation of bone marrow is indicated in all cases of pancytopenia. Pancytopenia is an important confront in our day-to- day clinical practice by hematological entity. There are different swings in its pattern, treatment procedures, and outcome.[7]

The aim of this study to evaluated the etiological & clinical profile of pancytopenia in adults above 18 years and its better understanding.

MATERIALS & METHODS

A Prospective Hospital Based Study conducted on 100 Cases in the age group above the 18 years with pancytopenia attended in medical OPD and or admitted in medical wards of Mahatma Gandhi Medical College & Hospital were evaluated undertaken during the period of December 2015 onwards.

Inclusion Criteria

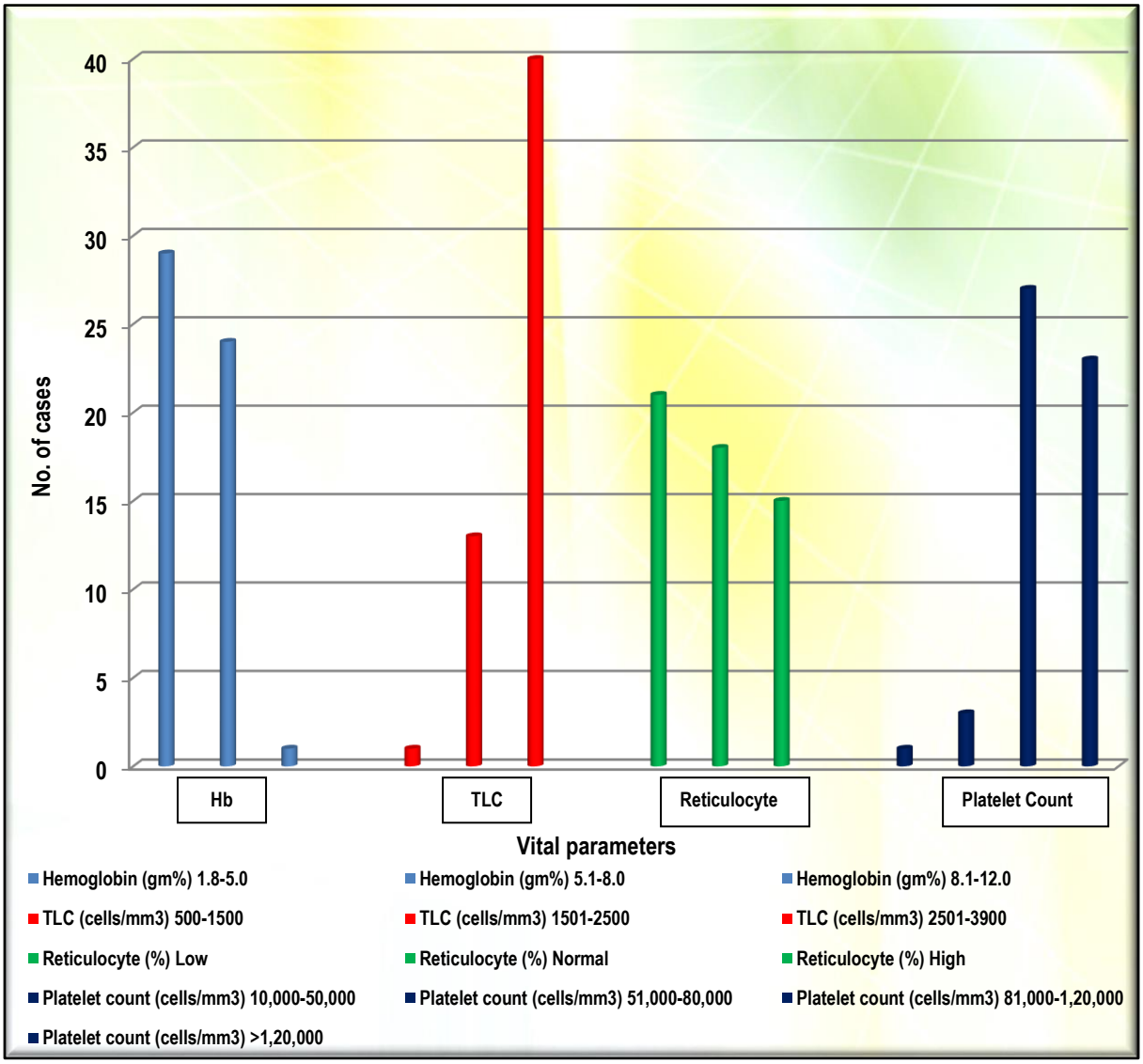
- Patients belonging to the age group above 18 years presenting with pancytopenia was included in the study group.
- Patient showing parameters as haemoglobin < 9 g/dl, TLC <4X10^9 and Platelet count < 140X10^9/ L with reference to age and geographical areas.

Exclusion Criteria

- Old diagnosed patients of pancytopenia who have already undergone treatment.
- All Patients below 18 years of age
- Patients who refused to undergo study trial.
- Pregnancy

Statistical Analysis

Collected data was analyzed in terms of varying clinical profiles and etiological factors.



Graph 1: Vital Haematological Parameters in Cases of Megaloblastic Anemia

RESULTS

In our study showed that the 55% incidence of pancytopenia is high in the age group of 18-35 years, the mean age of pancytopenia patients was 37 years and male to female ratio was 1.7:1 (table 1). All the patients complaining of pallor, followed by 96% generalized weakness, 92% anorexia, 91% fatigability, 71% knuckle pigmentation, 55% icterus, 37% fever, 23% weight loss (table 2).

The incidence of Macrocytic anaemia was (67%), Microcytic anemia (39%), Hypersegmented neutrophils was 32% and Normocytic anemia (14%) (table 3). Normocellularity is the commonest association constituting 71% followed by Megakaryocytic (21%) in bone marrow examination in this study (table 4). The diagnosis of pancytopenia was megaloblastic anemia (54%), followed by dimorphic anemia (8%), SLE (7%), Dengue (6%), hepatopulmonary syndrome (4%) (table 5).

Table 1: Incidence of pancytopenia in different age groups

Age groups (yrs)	Number	Percentage
18-35 yrs	55	55%
36-55 yrs	30	30%
>55 yrs	15	15%
Total	100	100%
Mean ±SD	36.98±15.43	
Male:female	1.7:1	

Table 2: General Physical Findings in Pancytopenia

S.No.	General examination	No. (%)
1	**Pallor**	100 (100%)
2	**Generalized weakness**	96 (96%)
3	**Knuckle pigmentation**	71 (71%)
4	**Icterus**	55 (55%)
5	**Fever**	37 (37%)
6	**Weight loss**	23 (23%)
7	**Platynychia**	23 (23%)
8	**Fetal edema**	18 (18%)
9	**Joint pain**	17 (17%)
10	**Swelling over face**	14 (14%)
11	**Rashes**	13 (13%)
12	**Oral ulcer**	13 (13%)
13	**Patechae**	10 (10%)
14	**Joint swelling**	7 (7%)
15	**Lymphadenopathy**	5 (5%)
16	**Kilonychia**	5 (5%)
17	**Bleeding gums**	4 (4%)
18	**Malena**	3 (3%)
19	**Fatigability**	91 (91%)
20	**Photosensitivity**	6 (6%)
21	**Anorexia**	92 (92%)

.Table 3: Peripheral Blood Picture in Pancytopenic Patients

Procedure	Number	Percentage
Normocytic	14	14%
Macrocytic	67	67%
Microcytic	39	39%
Hypersegmented Neutrophils	32	32%

Table 4: Cellularity of Bone-marrow in Pancytopenic Patients

Type of cellularity	Number	Percentage
Hypocellular	2	2%
Lymphocytic	3	3%
Megakaryoctic	21	21%
Hypercellular	3	3%
Normocellular	71	71%
Total	100	100%

Table 5: Diagnosis of pancytopenia cases

Diagnosis	No. of cases	%
Megaloblastic anemia	54	54%
Dimorphic anemia	8	8%
SLE	7	7%
Dengue	6	6%
Hepatopulmonary syndrome	4	4%
Malaria	3	3%
Myelodysplastic syndrome	3	3%
Chronic liver disease	3	3%
Intracerebral hemorrhage	3	3%
Small lymphocytic lymphoma	3	3%
Aplastic anemia	2	2%
Enteric fever	2	2%
HIV	1	1%
Iron deficiency anemia	1	1%
Total	100	100%

DISCUSSION

Pancytopenia may be result from a number of diseases processes–primarily or secondarily involving the bone marrow. It is a characteristics of many serious and life threatening diseases. These are varying in different population groups with their differences in age pattern, nutritional status and the prevalence of infection may lead to Pancytopenia diseases. The severity of disease and underlying pathology regulate the management and prognosis of these patients.

Our study observed that the incidence of pancytopenia is higher in the 18-35 years of age group and mean age was 37 years. A similar result found by G. Pavan Kumar Reddy et al (2016)[8] incidence of pancytopenia in younger and middle age group rather than in the elderly.

Dr Deepa Tekwani et al (2017)[9] found that maximum number of cases were in the age group of 21-30 years.

The incidence of pancytopenia is comparatively high in male as compared to female. Male to female ratio was 1.7:1 in our study. A consistence our results with Dr Deepa Tekwani et al (2017)[9] found male predominance (64%), P. S. Rani1, K. Suresh kumar (2017)[10] male female ratio was 1.6:1 and lower ratio than our results by Dr. K. S. Reddy et al (2015)[89] observed 1.3:1, G. Pavan Kumar Reddy et al (2016)[8] found 1.2:1.

Our study consisted with G. Pavan Kumar Reddy et al (2016)[8], Dr Deepa Tekwani et al (2017)[9] observed that commonest physical finding was pallor.

Our study conflicted that Dr Deepa Tekwani et al (2017)[9] found Dimorphic anemia (46%) followed by macrocytic anemia in blood picture.

In pancytopenia patients, majority of cases was megaloblastic anemia (54%), followed by dimorphic anemia (8%), SLE (7%) and Dengue (6%). Studies throughout India, revealed that the megaloblastic anaemia as the commonest cause of pancytopenia. Khunger et al found 72% megaloblastic anemia.[7] Kumar et al found 39% of cases megaloblastic anemia.[5] In a recent study by Thilak et al, megaloblastic anemia was proved to be the commonest cause and also revealed that few interesting and rare causes of pancytopenia like drug induced agranulocytosis, walden stroms macroglobulinemia etc.[2]

Megaloblastic anemia showed highest incidence (53.70%) in the age group of 18-35 years and male to female ratio is 2:1. A conflict our results with P. S. Rani, K. Suresh kumar (2017)[10] found Megaloblastic anaemia was more common in females than in males.

The commonest etiology of pancytopenia in multiple studies throughout the globally has been aplastic anemia. This is in sharp conflict with our study where the commonest etiology of pancytopenia was found to be megaloblastic anemia. Similar observation found various studies done in India.

Incidence of megaloblastic anemia was 54% in our study. Incidence of 72% was reported by Khunger *JM et al.*[1], 74% by Gayathri BN et al[11], 78% by Dr Deepa Tekwani et al (2017)[9] and 68%, by Tilak *V et al.*[2] It is a rapidly correctable disease and should be punctually notified.

CONCLUSION

Pancytopenia is not an unusual haematological problem confront in clinical practice and should be suspected on clinical basis when a patient presents with unexplained anaemia, prolonged fever and tendency to bleed. The physical findings and peripheral blood picture provides precious information in the work of pancytopenia patients. Complete hematological examination including bone marrow aspiration should be done in these patients to recognize and diagnose this disease early so that proper intervention and medical treatment of these patients can be done.

REFERENCES

1. Gupta V, Tripathi S, Tilak V, Bhatia BD. A study of clinic-haematological profiles of pancytopenia in children. Trop Doct. 2008; 38(4); 241-43.

2. Tilak V, Jain R. Pancytopenia – A Clinico hematologic analysis of 77 cases. Indian J Pathol Microbiol. 1999;42(4):399-404.

3. Young NS, Kaufman DW. The epidemiology of acquired aplastic anemia. Haematologica 2008;93:489-92.

4. Mahapatra M. Pancytopenia: aplastic Anemia. deGruchy's Clinical Hematology in Medical Practice. Wiley India edition. (6th Edition).2013; Chapter 6: 106-119.

5. Kumar R, Kalra SP, Kumar H, Anand AC, Madan M. Pancytopenia-A six year study. JAPI, 2001; 49: 1079-81.

6. R Sarode, et al. Pancytopenia in nutritional megaloblastic anemia. Trop Geogr Med., 1989; 41(4): 331-6.

7. Khunger JM, Arculselvi S, Sharma U, Ranga S, Talib VH. Pancytopenia-A Clinico-haematological study of 200 cases. Indian J Pathol Microbiol., 2002; 45(3): 375-379.

8. G. Pavan Kumar Reddy, Kande V. Mallikarjuna Rao. Clinical features and risk factors of pancytopenia: a study in a tertiary care hospital. International Journal of Advances in Medicine. 2016;Vol 3(1): Page 68-72.

9. Dr Deepa Tekwani, Dr Swapnil Bawa, Dr Ram Joshi, Dr. Sneha R Joshi. Clinico-Haematological Analysis of Pancytopenia in Adults.JMSCR, 2017;5(3):19020-190206.

10. P. S. Rani, K. Sureshkumar. To evaluate the clinical and etiological profile of patients presenting with pancytopenia in Government Dharmapuri Medical College Hospital, Dharmapuri. IAIM, 2017; 4(6): 125-131.

11. Gayathri B N, Kadam Satyanarayan Rao. Pancytopenia: A Clinico Haematological Study. Journal of Laboratory Physicians 2011; 3(1):15-20.

Source of Support: Nil.

Conflict of Interest: None Declared.

Cite this article as: ShivJeet Yadav, H.P Paliwal, Anchin Yadav, Aashish Sharma. Evaluation of Clinical Profile and Etiology of Pancytopenia in Adults Above 18 Years. Int J Med Res Prof. 2018 Jan; 4(1):286-89. DOI:10.21276/ijmrp.2018.4.1.058