ORIGINAL ARTICLE

Prevalence of Non Malignant Hematological Disorders in patients with Pancytopenia/ Bicytopenia: A bone marrow study of 148 cases in DHQ KDA Hospital and LMH Hospital, Kohat

AKHTAR MUNIR, SYED FAHIM SHAH*, TAHIRA ATA**, *NOUSHAD ASIM****, MUHAMMAD SAJID*****, MUHAMMAD FAROOQ******

ABSTRACT

Aim: To determine the frequency of non malignant hematological causes of pancytopenia. Bone marrow examination of 148 cases of suspected hematological disorders was carried out in a DHQ KDA Hospital, Kohat from Jan. 2011to Dec. 2013.
Results: Among the non malignant hematological disorders, megaloblastic anemia was the most common disorder i.e., (18.2%) followed by aplastic anemia (8.8%), ITP (10.1%)d hypersplenism (5.4%)
Conclusion: Megaloblastic anaemia is the most prevalent non malignant hematological disorder and the major cause of bicytopenia and pancytopenia in the bone marrow aspirates performed
Keywords: Pancytopenia, megaloblastic anemia, bicytopenia

INTRODUCTION

Pancytopenia is defined as a decrease in all the three cell lines of blood. It is not a disease entity but a triad of findings that may result from a number of disease processes, the important ones of which are myelodysplasia, leukemia, megaloblastic anemia, aplastic anemia, infiltration of bone morrow due to lymphoma and solid tumors[1]. Red blood cell indices help us to classify anemias as microcytic, normocytic, and macrocytic depending on low, normal or high MCV[2]. Most of the causes of pancytopenia present with nor-mal RBC indices[3], but causes like megaloblastic anemia, aplastic anemia, myelodysplastic syndrome and paroxysmal nocturnal hemoglobinuria present with high MCV[4]. Out of these causes megaloblastic anemia is one of the most common causes of pancytopenia which is easily preventable as well as treatable with timely treatment with Folic acid and Vitamin B12[5].

MATERIALS AND METHODS

This prospective study was carried out among 148 patients with suspected hematological disorders, attending in a DHQ KDA Hospital, Kohat from Jan. 2011to Dec. 2013. All age group patients referred for bone marrow study were included. Bone Marrow was collected by bone marrow aspiration needle from posterior iliac spine of each selected patient after giving local anesthesia by 2% Lidocaine hydrochloride

* *Associate professor, Medicine. KMU-IMS, Kohat*
** *Assistant professor Pathology, KMU-IMS, Kohat*
*** *Senior lecturer, pathology deptt. KMU-IMS, Kohat*
**** *Assoc. Prof. Pharmacology, KMU-IMS, Kohat*
***** *Emergency pathology deptt. SIMS/SHL, Lahore*
Correspondence to: Dr. Akhtar Munir, Associate professor, pathology deptt. KMU-IMS,KOHAT

RESULTS

The detail of results is given in tables 1, 2, and 3

Table 1: Age distribution (n=148)

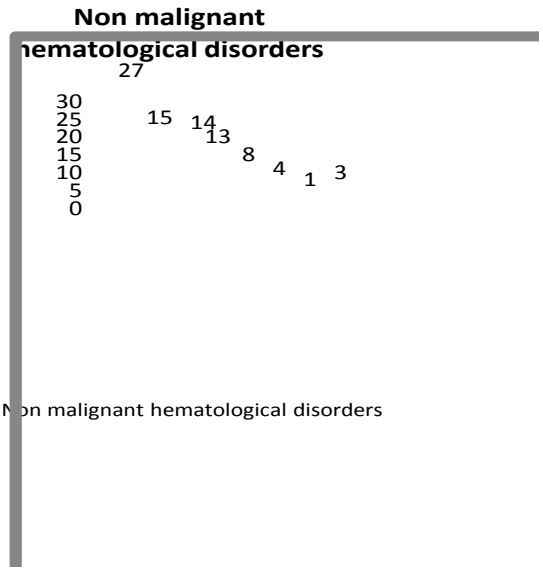
Age(yrs)	n	%age
<10	33	22.3
10-19	24	16.3
20-29	17	11.5
30-39	24	16.2
40-49	11	7.4
50-59	11	7.4
>60	28	18.9

Table 2: Sex distribution (n=148)

Gender	n	%age
Males	73	49.3
Females	75	50.7

Table 3: Bone marrow findings (n=148)

Bone marrow findings	n	%age
Non malignant hematological disorders		
Megaloblastic anemia	27	18.2
ITP	15	10.1
IDA	14	9.5
Aplastic anemia	13	8.8
Hypersplenism	8	5.4
Malaria	4	2.7
Gauchers disease	1	0.7
Erythroid hyperplasia	3	2.0
Normal BM	14	9.5
Malignant hematological disorders	49	33.1



DISCUSSION

In this study, out of 148 study population, maximum 33(22.3%) were in <10 years age group and lowest 11(7.4%) were in 40-59 years age group (Table 1). Out of 148 cases, 73(49.3%) were males & 75(50.7%) were females (Table 2). In one study by Kibria et al (2010)[6], out of 177 study population, maximum 41(23.16%) were in 10-19 years age group and lowest 6(3.39%0 were in >70 years age group and out of 177 cases, 111(62.71%) were male & 66 (37.29%) were female. Male –Female ratio was 1: 0.59.

Among non malignant hematological disorders of bone marrow study at Kohat, megaloblastic anemia 27(18.2%) was the most common. ITP was the second most common i.e. 15(10.1%). The third most common disorder is IDA i.e. 14 (9.5%). The fourth non-malignant disorder is Aplastic anemia i.e. 13(8.8%). In a study conducted by Kibria et al (2010)[6], aplastic anemia is the second most common disorder. In a study in Pakistan, Rahim et al[7], reported 14.2%, which was similar to our study. Idiopathic thrombocytopenic purpura was the second most common hematological disorder 15(10.1%) found on bone marrow examination in our patients. It is the most common cause of mucocutaneous bleeding. Its frequency on bone marrow examination varies between 32%[8] to 48%[9]. Rahim et al[7] reported 14.2% aplastic anemia cases in a study in Pakistan among children, which was contrary to our study.

In a study by Kibria et al (2010)[6], among non malignant hematological disorders of bone marrow, Combined deficiency anemia were most common. Out of 177 cases, combined (iron, folic acid and /or Vit. B12) deficiency anemias were 44 (24.87%). Similarly 24.29% micronutrients deficiency anemia like megaloblastic anemia and 15% mixed deficiency anemia was reported by Rahim et al in a study in Pakistan[7]. In other similar studies, its frequency ranges from as low as 24%[9] to as higher as 68%[10]. Folate deficiency is more common in children, while B12 deficiency is more common in adults[9]. It is a common problem in developing countries. In another study by Tariq et al (2009)[11] among 40 anemic children who underwent bone marrow aspiration, the most common finding was megaloblastic anaemia in 57.5%. Most of these patients had either bicytopenia (45%) or pancytopenia (42.5%). Together these patients constitute 87.5%. Another study performed at Abbasi Shaheed Hospital Karachi showing megaloblastic anaemia to be the most prevalent finding and the most common cause of pancytopenia[12].

CONCLUSION

Megaloblastic anaemia is the most prevalent non malignant hematological disorder and the major cause of bicytopenia and pancytopenia in the bone marrow aspirates performed

REFERENCES

1. Kar M, Ghosh A. Pancytopenia. JIACM 2002; 3: 29-34.
2. Mannan M, Anwar M, Saleem M, Wigar A, Ahmad MA. Incidence of aplastic anemia; The Study of serum vitamin B12 and folat levels in patients of megaloblastic anemia in northern Pakistan. J Pak Med Assoc 1995; 45: 187.
3. Keisu M, Ost A. Rosse WF. The control of complement activation by the Pancytopenia suspected of having Aplastic Anemia. Euro J Haematol 1990; 45;11.
4. Iqbal W, Hassan K, Ikram N, Nur S. Gaynon PS et al. Duration of 208 cases pancytopenia. J Rawal Med Coll 2001;5
5. 5. Iqbal W, Hassan K, Ikran N, Nur S. Aetiological Breakup J Clin Oncol 2001;19: 1916-25.
6. Kibria SG , Islam MDU, Chowdhury ASM. Prevalence Of Hematological Disorder:ABone Marrow Study Of 177 Cases InAPrivate HospitalAt Faridpur Faridpur Med. Coll. J. 2010;5(1):11-13
7. Rahim F, Ahmad I, Islam S, Hussain M, Khattak TAK, Bano Q. Spectrum of hematological disorders in children observed in 424 consecutive bone marrow aspirations/biopsies. Pakistan Journal of Medical Sciences 2005; 21(4):433-436.
8. Gaynon PS, Bostrom BC, Hutchinson RJ. Duration of hospitalization as a measure of cost on Children's Cancer Group acute lymphoblastic leukemia studies. J Clin Oncol. 2001; 19:1916-25.
9. Mussarat N, Raziq F. The incidence of underlying pathology in pancytopenia. An experience of 89 cases. J Postgr Med Inst. 2004;18(1):76-9.
10. Ng SC, Kuperan P, Chan GL. Megaloblastic anemia- a review from University Hospital, Kuala Lampur. Ann Acad Med Sing. 1988;17:261.
11. Tariq A, Khan F. Prevalence Of Megaloblastic Anaemia In a Paediatric Unit. Gomal Journal Of Medical Sciences 2009, Vol. 7, No. 1
12. Khalid G, Moosani MA, Ahmad L, Farooqi AN. Megaloblastic anemia seen in 48 cases of pancytopenia. Ann Abbasi Shaheed Hosp 2005; 10: 742-4.