Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2016; 4(11C):4078-4081 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2016.v04i11.044

Original Research Article

Incidence and pattern of bone marrow involvement in Lymphoma patients

Dr. M. Sandhya Rani[1], Dr. S. Dhanraj Reddy[2]
[1]Associate professor, Department of Pathology, MNR Medical College & Hospital, Sangareddy, Medak, Telangana, India, 502294.
[2]Associate professor, Department of Pathology, MNR Medical College & Hospital, Sangareddy, Medak, Telangana, India, 502294.

***Corresponding author**
Dr. M. Sandhya Rani
Email: drksandhyarani@yahoo.co.in

Abstract: Lymphomas also refer as primary malignancy of lymphoreticular system. The lymphomas have always presented a challenge to medical science because of its high fatality rate. To identify the incidence and pattern of bone marrow involvement in Hodgkin's and non- Hodgkin's group of lymphoma patients. A total 40 biopsy proved cases of lymphoma with leading symptoms such as significant loss of weight in past six months (6-12% of body weight), history of fever, history of pruritus and history of night sweats were considered. All routine blood and urine investigations and bone marrow examination was conducted. Among 40 cases 4 (10%) cases showed positive bone marrow infiltration and both cases showed diffuse involvement of bone marrow. Bone marrow involvement was equally common in Hodgkin's and non-Hodgkin's group. In this 10% cases showed bone marrow involvement. Incidence of the bone marrow involvement was more or less similar to previous authors in Hodgkin's group while the incidence was lower in non-Hodgkin's group as compared to previous series.
Keywords: Hodgkin's group, Bone marrow, non-Hodgkin's group, Histology, Incidence

INTRODUCTION

The term lymphoma refers to the primary malignancy of the lymphoreticular system of the body. The lymphomas have always presented a challenge to medical science because of its high fatality rate [1, 2]. Magnitude of problem can be assessed by the fact that about 45 per million lives are being lost every year in the Great Britain because if this disease. 50% of these are due to Hodgkin's, 7% due to follicular lymphoma and rest 43% are due to lymphosarcoma [3].

Despite many advances in the field of medicine the prognosis of the disease had been quite gloomy till few years back. However the picture of previous years is changing fast due to the concerted and conjoint efforts on the part of surgeons, pathologists and Radiotherapists and a picture of assurance is emerging fast for these patients [4, 5].

There are many interesting aspects about these primary tumours of lymphoreticular system which have attracted attention of the workers in the recent past [6]. Foremost among these are rational of existing methods for terminology, nomenclature, classification accurate staging and treatment. Efforts have always been forthcoming where by the histology; staging and treatment could be correlated with each other. So that the ultimate prognosis of these patients could be improved. The present study was hypothesized to found the incidence and pattern of lymphoma with bone marrow involvement.

MATERIALS AND METHODS

The cases for the present study were selected from the patients admitted in the M N R Medical College and Hospital, Sangareddy during July, 2014 to September, 2016. A detailed history was taken and leading symptoms were considered in all the cases i.e. significant loss of weight in past six months (6-12% of body weight), significant history of fever, history of pruritus, history of night sweats. All routine blood and urine investigations, routine blood smears, liver function tests, X-Ray and bone marrow examination - aspiration as well as open iliac biopsy.

RESULTS

In total 40 biopsy proved cases of lymphoma who were admitted in MNR Medical College, Hospital, Sangareddy during July, 2014 to June, 2016 were studied and a bone marrow examination was done, to

note the incidence and pattern of involvement and its relation to the clinical stage and histology. Among 40 cases, 20 (50%) were of Hodgkin's type and rest 20 (50%) were of Non- Hodgkin's type. Cases of Hodgkin's group were divided according to the histological subtype was as follows (According to Lukes and Butler classification).

Table-1: Histological subdivision of Hodgkin's group cases.

Histologic Type	Number	Percentage (%)
Lymphocytic predominance	2	10
Nodular sclerosis	4	20
Mixed cellular	14	70
Lymphocytic depletion	-	-
total	20	100

According to Rappaport classification, cases of non-Hodgkin's group were divided to the following histological subtype. The table-3 shows with the incidence & pattern of bone marrow involvement in different histological types.

Table-2: **Histological subdivision of Non-Hodgkin's group cases**

Histologic Type	Number	Percentage (%)
1. Lymphocytic		
- Well differentiated		
Nodular	-	-
Diffuse	16	80
- Moderately differentiated		
Nodular	-	-
Diffuse	-	-
- Poorly differentiated		
Nodular	-	-
Diffuse	-	-
2. Histiocytic		
Diffuse	4	20
3. Mixed	-	-
4. Undifferentiated	-	-
Total	20	100

Table-3: Incidence & pattern of bone marrow involvement in different histological types of lymphoma

Histological types	Incidence			pattern			
				Focal		Diffuse	
	Total no.	Affected	(%)	No.	(%)	No.	(%)
Hodgkin's group							
Lymphocytic Predominance	2	0	0	-	-	-	
Nodular sclerosis	4	2	50	-	-	2	
Mixed cellular	14	0	0	-	-	-	
Lymphocytic depletion	-	-	-	-	-	-	
Total positive	20	2	10	-	-	2	100
Non- Hodgkin's group							
A. Lymphocytic							
Well differentiated		-	-	-	-	-	-
Diffuse	16	0	-	-	-	-	-
Focal							
Moderately differentiated							
Diffuse		-	-	-	-	-	-
Nodular		-	-	-	-	-	-
Poorly differentiated							
Diffuse		-	-	-	-	-	-
Nodular		-	-	-	-	-	-
B. Histiocytic Diffuse nodular	4	2	50	-	-	2	100
C. Mixed							
D. Undifferentiated							
Total positive	20	2	10	-	-	2	100

Table-4: Showing the relationship of positive bone marrow with the clinical stage of the patient

Stage	Hodgkin's			Non – Hodgkin's		
	Total number	No. of affected	%	Total number	No. of affected	%
I	4	0	-	6	0	-
II	6	0	-	-	-	-
III	8	0	-	6	0	-
IV	2	2	10	8	2	10
Total	20	2	10	20	2	10

DISCUSSION

The relative incidence of two groups of lymphomas according to M.M. Wintrobe and D.R.Bogg is about 33 – 50% of the Hodgkin's group to the 50-60% of non-Hodgkin's group (7). Ketayun A. Dinshaw et al. conducted a retrospective study in Western India and reported thirty three percent (33%) of all malignant lymphoma were of Hodgkin's disease and 67% were of non-Hodgkin's type [8]. In the present study among 40 cases 20 cases belongs to Hodgkin's group and rest 20 were of non-Hodgkin's group making the relative incidence 50-50%.

The relative percentage of the different histological subtypes of Hodgkin's group in the present study showing 70% mixed cellular type, 20% nodular sclerosis, 10 % lymphocytic predominance and no lymphocytic depletion in any cases. The present results were quite near to the findings of Lukes and Butler et al, Rosenberg et al, Thoma V.Colby et al. [9-11].

Among 40 cases 4 (10%) cases showed positive bone marrow infiltration and both cases showed diffuse involvement of bone marrow. Among 4 positive cases one belongs to Hodgkin's group showed infiltration by lymphoma cells and reticulum cell hyperplasia and other case belongs to non - Hodgkin's group showed only invasion by lymphoma cells of the bone marrow.

There is a wide variation of incidence of bone marrow involvement by various authors. In Hodgkin's group, Thomas V Colbay (4%), Newcomer et al (15%), Ketayun A. Dinshaw et al (14%) and present study (10 %). In non-Hodgkin group, Maitreyun V. et al (37.6%), Oman C.S et al (35.6%) and present study (10%). So in this study the positive bone marrow cases10% involvement was of nodular sclerosis type. To draw an effective conclusion from this study is slight difficult due to less number of cases.

CONCLUSION

The ratio of Hodgkin's to Non-Hodgkin's was found to be 1:1. Among Hodgkin's group, commonest histological type was mixed cellularity. No case of lymphocytic depletion was found. In non – Hodgkin's group commonest histological type was lymphocytic followed by histiocytic type. No cases of other types were found. Bone marrow involvement was equally common in Hodgkin's and non-Hodgkin's group. In this series 10% cases showed bone marrow involvement. Incidence of the bone marrow involvement was more or less similar to previous authors in Hodgkin's group while the incidence was lower in non-Hodgkin's group as compared to previous series.

REFERENCES

1. Franco V, Tripodo C, Rizzo A, Stella M, Florena AM. Bone marrow biopsy in Hodgkin's lymphoma. European journal of haematology. 2004 Sep 1;73(3):149-55.
2. Wittis LJ. Disease of lymphatic systems. Prices text book of practice medicine. 19th Edn. 1986.
3. Arber DA, George TI. Bone marrow biopsy involvement by non-Hodgkin's lymphoma: frequency of lymphoma types, patterns, blood involvement, and discordance with other sites in 450 specimens. The American journal of surgical pathology. 2005 Dec 1;29(12):1549-57.
4. Sovani V, Harvey C, Haynes AP, McMillan AK, Clark DM, O'Connor SR. Bone marrow trephine biopsy involvement by lymphoma: review of histopathological features in 511 specimens and correlation with diagnostic biopsy, aspirate and peripheral blood findings. Journal of clinical pathology. 2013 Dec 10:jclinpath-2013.
5. Tong H, Ren Y, Qian W, Xiao F, Mai W, Meng H, Jin J. Clinicopathological study on peripheral T-cell non-Hodgkin lymphoma with bone marrow involvement: a retrospective analysis from China. International journal of hematology. 2009 Oct 1;90(3):303-10.
6. Zhang QY, Foucar K. Bone marrow involvement by Hodgkin and non-Hodgkin lymphomas. Hematology/oncology clinics of North America. 2009 Aug 31;23(4):873-902.
7. Wintrobe MM. Wintrobe's clinical hematology. Greer JP, editor. Lippincott Williams & Wilkins; 2009.
8. Dinshaw KA, Advani SH, Gopal R, Nair CN, Talvalkar GV, Gangadharan P, Desai PB. Management of Hodgkin's disease in western India. Cancer. 1984 Oct 1;54(7):1276-82.
9. Lukes RJ, Butler JJ. The pathology and nomenclature of Hodgkin's disease. Cancer research. 1966 Jun 1;26(6 Part 1):1063-81.

10. Rosenberg SA. Bone marrow involvement in the non-Hodgkin's lymphomata. The British journal of cancer. Supplement. 1975 Mar;2:261.
11. Colby TV, Warnke RA, Hoppe RT. Hodgkin's disease at autopsy: 1972–1977. Cancer. 1981 Apr 1;47(7):1852-62.