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Pathology

PROSPECTIVE DEMOGRAPHIC AND CLINICOHEMATOLOGICAL PROFILE OF CHRONIC LYMPHOCYTIC LEUKEMIA CASES IN NORTH INDIAN POPULATION

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ABSTRACT

INTRODUCTION: Chronic lymphoid leukemia (CLL) is more common in western countries than Asian population. There are very few studies in Indian population, so the purpose of this study was to determine demographic as well as clinicohematological data of chronic lymphocytic leukemia patients in North India.

MATERIALS AND METHODS: This was a prospective descriptive type study conducted on 48 patients with Chronic lymphoproliferative disorders - 26 cases were proved as chronic lymphocytic leukemia on flow cytometry. Detail clinical history & hematological parameters were assessed of CLL patient& data was analyzed using Statistical Package for Social Sciences (SPSS) Version 15.0

RESULTS: The mean age of the patients were 60.85±12.23 (37-80) years, majority were above 60 years of age (61.5%). Male to female ratio was 5.5:1. Fever was the most common symptom (61.5%) in our patients followed by weight loss (42.3%) and night sweats (3.8%). Mean value of total leukocyte count ,haemoglobin levels, platelet count were 75.4±65.8 x10^9/l, 10.52±1.94 g/dl, 135.8±77.5 x10^9/l respectively. Normoytic - normochromic blood picture were in 9 (34.6%) while anisocytic -hypochromic in remaining 17 (65.4%) patients.

CONCLUSIONS: 23% of patients were <50 years of age which was earlier in comparison to western scenario -may be due to early age of presentation in our population. Male to female ratio was 5.5:1 showing more tendency towards male population in comparison to western population. Anemic and thrombocytopenic patients with fever as more common presentation .

KEYWORDS : Chronic lymphocytic leukemia, Demographic profile, Flow cytometry

INTRODUCTION

Mature B cell lymphoproliferative diseases account for more than 80% of hematolymphoid neoplasms [1] &Chronic Lymphocytic Leukemia is the most frequent type of LPD [1,2]. CLL is a quite heterogeneous disease (both morphologically and immunophenotypically), which makes the diagnosis difficult [3-7]. The clinical presentations and natural histories of chronic lymphoproliferative disorders are extremely heterogeneous. One report from the UK shows that patients of South-Asian origin with CLL have more aggressive disease compared to those among white population.[8] This observation suggests that prospective studies relating to CLL and other lymphoproliferative disorders need to be initiated. Here we present clinicohematological & demographic profile of 26 patients of chronic lymphocytic leukemia in North Indian population.

MATERIALAND METHODS

Newly diagnosed cases of CLL were included in the study. Each patient undergone following investigations-Detailed clinical history for presenting symptoms ,physical examination for presence of features of hepatosplenomegaly and lymphadenopathy , hemoglobin estimation, total and differential leukocyte & platelet counts .General blood picture and lymphocyte identification and percentage(leishman stain). Bone marrow aspirate examination for presence and percentage of lymphocyte. Flowcytometric[159] analysis of marrow aspirate or peripheral blood for markers specific for B-cell and T-cell lineages using BD FACS Caliber (Becton Dickinson-Fluorescence Assisted Cell Sorter) Fluorochrome labeled antibodies: Chronic lymphoproliferative disorder panel was used which included the following antibodies :

PerCP: CD45,CD19

FITC: CD5, CD20, FMC7, Anti lambda, CD4, CD25, Cd7

PE: CD19, CD38, CD23, Anti kappa, CD10, CD8, CD103, CD22, Cd3

DATA ANALYSIS: Data was analyzed using Statistical Package for Social Sciences (SPSS) Version 15.0. Frequency (number), proportions (%), mean and standard deviation was used to represent the data.

RESULTS

- Majority of cases enrolled in the study were diagnosed as CLL-26 out of 48 cases(54.2%) followed by B-CLPD.
- Age profile of CLL patients:

SN	Age Group (Years)	No. of cases	Percentage
1.	31-40	3	11.5
2.	41-50	3	11.5
3.	51-60	4	15.4
4.	61-70	11	42.3
5.	71-80	5	19.2
Mean Age±SD (Range) in years		60.85±12.23 (37-80)	

Age of CLL patients in our study population ranged from 37 to 80 years. Majority were above 60 years of age (61.5%) with a mean age of 60.85±12.23 years and median age of 62 years. Our 23% of patients are <50 years of age. Male to female ratio was 22 (84.6%) :4 (15.4%) in our study.

2) Clinical profile

Clinical Profile (n=26)

SN	Symptoms	No. of cases	Percentage
1.	Fever	16	61.5
2.	Weight loss	11	42.3
3.	Night sweats	1	3.8
4.	Lymphoadenopathy	5	19.2
5.	Splenomegaly	4	15.4
6.	Hepatomegaly	1	3.8
7.	Lymphadenopathy + Splenomegaly	3	11.5
8.	Lymphadenopathy + Hepatomegaly	1	3.8
9.	Hepatomegaly + Splenomegaly	1	3.8
10.	Lymphadenopathy + Hepatomegaly + Splenomegaly	1	3.8

3) Hematological profile (n=26)

Parameters	n	Minimum	Maximum	Mean	SD
TLC (x10^9/l)	26	14.5	295	75.4	65.8
DLC(%)					
Neutrophil	26	4	52	19.88	14.37
Lymphocytes	26	33	94	75.65	15.40
Monocytes	26	0	14	2.15	2.85
Eosinophils	26	0	4	1.50	1.39
Abnormal lymphocytes	26	0	0	0.00	0.00
Prolymphocyte	26	0	8	0.81	1.92
Plasma cells					
Hb(g/dl)	26	6.4	14.1	10.52	1.94

Platelet count (x10^9/l)	26	7.2	283	135.8	77.5
GBP					
-Anisocytic & Hypochromic	17 (65.4%)				
-Normocytic & Normochromic	9 (34.6%)				
Presence of Smudge cells	24 (92.3%)				

Total leukocyte count ranged from 14.5 to 295(x10^9/l) with a mean value of 75.4±65.8 x10^9/l.Neutrophil count ranged from 4 to 52% with a mean of 19.88±14.37%. Lymphocyte count ranged from 33 to 94% with a mean value of 75.65±15.40%. Mean monocyte, eosinophil and prolymphocyte count was 2.15±2.85, 1.50±1.39 and 0.81±1.92% respectively. Haemoglobin levels ranged from 6.5 to 14.1 g/dl with a mean value of 10.52±1.94 g/dl. Similarly platelet count varied from 7.2 to 283x10^9/l with a mean value of 135.8±77.5 x10^9/l.General blood picture revealed normoytic and normochromic profile in 9 (34.6%) and anisocytic and hypochromia in remaining 17 (65.4%) patients. Smudge cells were seen in 24 (92.3%) cases.

DISCUSSION

In our study , percentage of CLL cases were less in comparison to other studies probably due to regional distribution, asymptomatic CLL cases, financial reasons and prospective cases which includes cases with bone marrow infiltration alone.

STUDY	Number of cases	CLL cases
Okaly GVP et al.[17]	66	74.2%(49)
Deewan K et al.[16]	30	70%(21)
Mahmood KA et al.[18]	30	60%(18)
Our study	48	54.2%(26)

- Age of CLL patients ranged from 37 to 80 years. Majority were above 60 years of age (61.5%) with a mean age of 60.85±12.23 years and median age of 62 years.(Table 9(a)) Our 23% of patients are <50 years of age which was discordant with the study of Mauro FR et al.9In their study ~10% were <50 years of age group. This may be due to early age of presentation in our population.Male to female ratio was 22 (84.6%) :4 (15.4%) in our study which is 2.5 times more than western population .[19,20]

Comparing our study with the studies regarding demographic distribution is listed below.

Demographic distribution	Agarwal Net al.[10] N=95	Guarini A et al.[11] N= 20	Ivancevic TD et al.[12] N=183	Our study N=48
Median age (years)	61	55	64	62
M:F	3.75:1	1.5:1	2.3:1	5.5:1

- 15% (4/26) of patient were diagnosed incidentally while 85%(22/26) were symptomatic. Fever was the most common symptom (61.5%) in our study population of CLL (table 9b). Comparing clinical profile in our study population with Agarwal N et al. study is listed below:

Clinical profile	Agarwal N et al[10].	Our Study
Asymptomatic presentation	7.36%	15%
Fever	25%	61.5%
Lymphadenopathy	55%	38.4%
Splenomegaly	66%	34.6%
Hepatomegaly	63%	15.3%

- Total leukocyte count ranged from 14.5 to 295x10^9 /L with a mean value of 75.4±65.8 x10^9/L. Lymphocyte count ranged from 33 to 94% with a mean value of 75.65±15.40%. Our 53.8% (14/26) CLL patient were anemic with hemoglobin <11g/dl, 30.7%(8/26) patient had thrombocytopenia with platelet count <100x10^9/l and 23.07%(6/26) patients had both anemia and thrombocytopenia. Percentage of anemic and thrombocytopenic patients were more in our study population of CLL in comparison to Agarwal N et al.[10] and Ivancevic et al.[12] studies may be because of late referral to our centre and disease progressed to more advanced stage with bone marrow effacement or an immune-mediated destruction of cells secondary to autoantibody production.
- Smudge cells were seen in 24 (92.3%) cases corresponding to study of Binet JL, Baudet S, et al.studies.[14] However 6 cases had less than 10 smudge cells/100WBC and was not reported and probably it was due to preparation of blood film or presence of more number of medium to large lymphocytes and show concordance with the study of Matos DM, Perini G et al.[15]

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