AN EXPERIENCE WITH SIXTY CASES OF HAEMATOLOGICAL MALIGNANCIES; A CLINICO HAEMATOLOGICAL CORRELATION

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Background: Haematological malignancies are not uncommon in our area. Due to inadequate diagnostic facilities and lack of health education they are diagnosed at an advanced stage when treatment is either impossible or very difficult. In our study, sixty patients with haematological malignancies were studied from 1-1-1999 to 1-1-2001, at Ayub Teaching Hospital, Abbottabad. **Methods:** Patients were interviewed in detail, a thorough physical examination and blood tests including haemoglobin estimation, total and differential leukocyte count, platelets count, reticulocyte count and blood film examination was done on each patient. Bone marrow examination for routine giemsa staining and cytochemistry was also done in each case. Trephine biopsy was done in selected cases. **Results:** About 35.9% patients had acute myeloid leukemia, while 19.15% patients had acute lymphoblastic leukemia. Non Hodgkin's lymphoma was seen in 15.39% cases. Among chronic leukemias, chronic lymphocytic leukemia outnumbered chronic myeloid leukemia (13.91% against 10.76%). Multiple myeloma was seen in 4.61% patients while a single patient had Hodgkin's disease. Male to female ratio in haematological malignancies was 1.4:1 and majority of the patients (66.66) belonged to two districts (i.e. Mansehra and Abbottabad). Low grade fever, progressive pallor, weakness and body aches were the commonest symptoms (70% cases) while pallor was the frequently observed sign. Medium age for acute myeloid and acute lymphoblastic leukemia was 26 years and 7 years respectively. For chronic myeloid and chronic lymphocytic leukemia it was 22 years and 56 years respectively. In case of non Hodgkin's lymphoma it was 22.5 years. **Conclusion:** In our study acute myeloid leukemia was the commonest type of haematological malignancy. Males were affected more than the females. Majority of the patients belonged to districts Mansehra and Abbottabad. Non specific symptoms like low grade fever, progressive pallor and bodyaches were the commonest symptoms while pallor was the most frequently observed sign.

Key Words: Haematological malignancy, Clinicohaematological correlation, Leukemia

INTRODUCTION

Cancer can arise from any tissue in the body. Tissues with rapidly multiplying cells are at more risk of having cancer. Haemopoietic system is one of them. Malignancies of this system are known as leukemia and lymphoma. Leukemia was recognized by Virchow[1] in 1945 as a clinical entity for the first time. Later researchers contributed a lot by classifying this clinical condition.[1] Lymphoma, strictly speaking a malignant disorder of the cells native to lymphoid tissue, was grouped along with leukemia because of the common origin of both.

As for the other types of malignancies, there is no single known etiological agent for haematological malignancies. Some of the etiological factors include genetic predisposition, viruses, chemicals and radiations.[2] Tobacco smoking could be one of them. A lot of high tech research is going on in this field throughout the world, specially developed countries both from diagnostic and therapeutic point of view.[3-5] Acute lymphoblastic leukemia (ALL) is four times more common in children as compared to adults. The reverse is true with increasing age.[6] Peak incidence of childhood All is between 3 and 5 years in Western countries.[7] Median age of patients with Acute Myeloid leukemia (AML) is about 55 years and there is no peak age incidence in childhood AML[8].

Chronic lymphocytic leukemia is a disease of adults with median age 60 years. This is the commonest type of leukemia in Western countries.[9] Chronic myeloid leukemia has peak incidence between 30 years and 50 years of age. Multiple myeloma being a plasma cell malignancy is also an age dependent disease.[10] Hodgkin's lymphoma has bimodal age incidence, first about 25 years and second in advanced age.[11] Non Hodgkin's lymphoma is not a single disease. It represents a diverse group of neoplasms ranging from some of the most indolent tumors to most aggressive ones.[12]

The present study aims at knowing the break up of haematological malignancies, their clinico-haematological correlation and providing study based suggestions for better diagnosis and treatment of them in this part of the country.

MATERIAL AND METHODS

Consecutive patients of all ages, ethnic groups and both the sexes were selected from Ayub Teaching Hospital. Every patient was interviewed. In case of a child mother was interviewed. General particulars like age, sex, address and detailed history was recorded for every patient. Detailed clinical examination was then performed on each patient with particular emphasis on haematological examination. A clinical diagnosis was made based on history and findings of physical examination. Blood tests were performed on every patient. Haemoglobin estimation was done by Cyenmethaemoglobin method. Total leukocyte count and platelets count was done by visual method. Differential leukocyte count was also done by visual method after staining blood film with Giemsa stain (Sigma kit).

Blood film examination for cell morphology was performed after staining with Giemsa stain. Bone marrow was examined after aspiration from posterior iliac spine in adults and tibia in children under two years of age. In addition to routine examination after staining with Giemsa stain, bone marrow was also subjected to iron stain and cytochemistry (Pox, SB, PAS). Trephine biopsy was also performed where bone marrow aspirate was inadequate. Leukocyte alkaline phosphatase score was done where clinical diagnosis was consistent with chronic myeloid leukemia (all chemicals from sigma diagnostics). A total of 73 cases were included in the study in the beginning. However, three patient died during study, five patients left the hospital and complete data was not available in another five patients. So sixty patients were left in the end.

RESULTS

Results of the study are as shown in tables 1-6. In our study, haematological malignancies were found to be more common in males (male to female ratio being 1.41:1). Majority of the cases belonged to two districts i.e. district Mansehra and Abbottabad (about 36.66% and 30% respectively. 15.39% patients belonged to district Haripur, while about 7.69% patients were from district Kohistan and Batagram. About 7.68% patients belonged to neither of these districts.

AML was found to be the commonest type of haematological malignancy (35.39%). Acute lymphoblastic leukemia was the next most common (19.15%). Non Hodgkin lymphoma was seen in about 15.39% patients.

Among chronic leukemias, CLL was more common than CML (13.91 & 10.76% respectively). Only one patient was found to have Hodgkin's disease (1.61%), while multiple myeloma was seen in 4.61% cases.

Table-1: Frequency distribution of haematological malignancies.

Type of Malignancy	No. of Cases	Percentage
AML	18	35.39 %
ALL	12	19.15%
NHL	10	15.39%
CLL	09	13.91%
CML	07	10.76%

MM	03	4.61%
HL	01	1.61%
	60	100%

Table-2: Gender distribution of haematological malignancies.

Sex	No. of Cases	Percentage
Male	34	56.66%
Female	26	43.33%
Total	60	100%

Table-3: Area distribution of haematological malignancies.

Area	No. of Cases	Percentage
Mansehra	22	36.66%
Abbottabad	18	30.00%
Haripur	10	16.66%
Kohistan	5	8.33%
Afghani	3	5.00%
Others	2	3.33%
Total	60	100%

Table-4: Clinical features

Clinical features	**AML**	**ALL**	**NHL**	**CLL**	**CML**	**MM**	**HL**
Low grade fever	95%	85%	72%	80%	87%	73%	100%
Progressive Pallor	100%	60%	65%	68%	82%	20%	Nil
Generalized weakness	93%	90%	87%	87%	45%	95%	100%
Bodyaches	97%	70%	90%	66%	63%	100%	100%
Weight Loss	54%	63%	47%	55%	38%	25%	100%
Bleeding	48%	52%	Nil	Nil	10%	Nil	Nil
Lymphadenopathy	42%	74%	68%	78%	Nil	Nil	100%
Pallor	100%	84%	42%	62%	65%	35%	100%
Hepatomegaly	74%	64%	22%	53%	10%	Nil	Nil
Splenomegaly	73%	67%	18%	43%	89%	Nil	Nil

Bone Tenderness	93%	86%	14%	16%	Nil	100%	Nil
Jaundice	17%	27%	Nil	Nil	Nil	Nil	Nil
Purpura	20%	12%	Nil	Nil	Nil	Nil	Nil
Retinal haemorrhages	15%	Nil	Nil	Nil	Nil	Nil	Nil

Table-5: Age distribution of haematological malignancies.

Age group in years	NO OF CASES							Total
	AML	ALL	CML	CLL	NHL	MM	HL	
>5	2	4	00	00	1	00	00	07
6-10	1	5	1	00	1	00	00	08
11-15	1	3	1	00	3	00	00	08
16-20	2	00	00	00	1	00	1	04
21-25	2	00	2	00	1	00	00	05
26-30	1	00	00	00	00	00	00	01
31-35	3	00	00	00	00	00	00	03
36-40	1	00	00	00	00	00	00	01
41-45	1	00	1	1	2	00	00	05
46-50	1	00	00	0000	00	1	00	02
51-55	0	00	00	2	00	0	00	02
56-60	1	00	1	3	00	1	00	06
>60	2	00	1	3	1	1	00	08
	18	12	07	09	10	03	01	60

Table 6- Median age and haematological parameters in haematological malignancies

Parameters	AML	ALL	NHL	CLL	LML	MM
Mean Hb in gm/dl	7.52	7.56	7.94	8.31	6.84	8.43
Mean TLC/cmm	44555.55	47416	10972	51000	141857	11333
Mean platelets count/cmm	67611.11	70833.3	117000	137333.3	250714	138333
Median age in years	26	7	22.5	56	22	56
Age range in years	5-65	3-12	5-65	45-75	10-75	40-65

DISCUSSION

Haematological malignancies are not uncommon in our country. Different studies have been conducted on various aspects of individual haematological malignancies in the past. A study conducted on patients from northern Pakistan showed that leukemia was the second commonest cancer in males and third commonest cancer in females.[13] In our study, it was observed that low grade fever, progressive pallor, generalized weakness and bodyaches were the most frequent symptoms, while pallor was the most frequently found sign in AML and ALL and splenomegaly alone was noted most frequently in CML. Bone tenderness was most common in multiple myeloma; ALL and AML being the next. Lymphodenopathy was observed in Hodgkin's disease in 100% case, while in CLL, ALL and NHL it was seen in 78%, 74% and 68% patients respectively. Interestingly, retinal hemorrhages were seen in 15% cases of AML. Bleeding was also observed in acute leukemia. Our findings are not much different from the earlier studies.[14-17] Median age of presentation of the three commonest types of haematological malignancies i.e. AML, ALL and NHL was 26 years, 7 years and 22.5 years respectively (ranges 5-65 years, 3-12 years and 5-65 years respectively).

For NHL our findings are different from those of an earlier study performed exclusively on NHL with median age 48.2 years.[18] The reason is not exactly known. Small sample size in our study could be one factor. For AML and ALL also our findings were not much different from those of the earlier researchers.[17] Median age for CLL and multiple myeloma was 56 years each (ranges 45-75 & 46-65 years respectively). This is slightly different from the results of earlier work.[19]

The median age for CML was 22 years (range 10-75 years) as against 34 years in an earlier study.[15] One patient had juvenile CML (age 10 years). The single patient with Hodgkin's disease in our study was 20 years old. Among the haematological parameters, haemoglobin, total leukocyte count (TLC) and platelets count were studied. The results are as shown in table-VI.

Mean hemoglobin was found to be lowest in CML (6.84 gm/dl) and highest in multiple myeloma (8.43 gm/dl). In AML, ALL and NHL it was not much different (i.e. between 7 and 8 gm/dl). In CLL it was close to that of multiple myeloma (8.31). Mean total leukocyte count was highest in CML (141857/cmm) and lowest in NHL (10972/cmm). For the other malignancies it is as shown in table-VI. Mean platelets count was low for AML & ALL (67611.11/cmm & 70833.3/cmm) respectively. It was more than 100000/cmm in others.

More studies are required on larger samples and with the help of more sophisticated diagnostic techniques to have a better idea of different subtypes of the individual malignancies in this area. No doubt, this is a tedious work, it is not impossible if a little attention is paid to this important health problem. Our suggestion is that if government organizations find some difficulties regarding funds etc. private sector and NGOs may be asked to come forward and help the government in its fight against cancer.

ABBREVIATIONS USED

AML - Acute myeloid leukemia

ALL - Acute lymphoblastic leukemia

CML - Chronic myeloid leukemia

CLL - Chronic lymphocytic leukemia

MM - Multiple myeloma

HL - Hodgkin's lymphoma

NHL - Non Hodgkin's lymphoma

POX - Peroxidase

PAS - Periodic acid schiff

SB - Sudan black

LAP - Leukocyte alkaline phosphatase

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