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Original article

Distribution of Malignant Lymphomas Among Adults at National Cancer Institute, Misurata, Libya

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Abstract

Aim: *This study aims to demonstrate distribution and clinic-pathologic characters of different subtypes of malignant lymphomas.* ***Methods:*** *A retrospective study on hospital-based data, 113 files of lymphoma patients registered in onco-hematology clinic had been reviewed. Lymphomas were compared in respect of age, gender, clinical features and viral serology of all patients.* ***Results:*** *A total of 57 of patients were females and 56 were male, age ranged between 15 and 87 years, nodular swelling of neck was the dominant complaint in 52 cases (46%), B-symptoms observed in 27 cases (23.9%) and superior vena cava (SVC) obstruction seen in 11 cases (9.7%). Hodgkin's lymphoma (HL) cases represent 40% of our series, and T cell lymphoma cases constitute 11% of Non-Hodgkin's lymphoma (NHL). NS is the commonest type of HL followed by MC and DLBCL is the most common Subtype of NHL followed by SLL-CLL.* ***Conclusion:*** *Female to male ratio is almost equal in all our patient with no bimodal age distribution in HL, NS is the commonest HL, while DLBCL is the commonest subtype of NHL, and T cell lymphoma patients were young.*

Keywords: *Adults, Distribution, Libya, Malignant lymphomas, Subtypes.*

Introduction

Malignant lymphomas are a heterogeneous neoplasm with variations in clinical presentations, and biology [1-4]. These diseases are traditionally classified into two divisions: Hodgkin's lymphoma (HL), and non-Hodgkin's lymphoma (NHL), the latter represents a designation for at least 30 subtypes of distinct B- and T-cell neoplasms [3,17].

Lymphomas were estimated to have accounted for approximately half of all newly diagnosed hematological neoplasms [1]. Lymphoid neoplasms are the sixth most common malignancy internationally, but there are geographic variations, with the highest rates observed in North America and Australia, followed by Europe, and lower rates throughout Asia (4). Recent advances in immunology, genetics, and biology have revealed extensive changes in the classifications of these tumors [4]. They constitute a considerable percentage of cancer cases in East Libya as reported by Benghazi Cancer Registry (BCR), 1% for HL, 5.4% for NHL in females while 1.2% for HL and 5.3% for NHL in males [2].

For NHL, the age-specific male and female rates increase with increasing age; by contrast, the HL incidence distribution has two peaks – one in young adults and another in the elderly. Lymphoid malignancies are more common in men than women [1]. An etiology of lymphomas is unknown, but immune system dysfunction plays a probable role, and most epidemiological researches has concentrated on the role of infections such as human immunodeficiency virus (HIV), Epstein Barr virus (EBV), Human T-cell lymphotropic virus (HLTV), Hepatitis C Virus (HCV), *Helicobacter pylori* or autoimmune diseases in pathogenesis of disease [1,3,5,9].

A considerable difference in the incidence and distribution of major NHL subtypes across the world were observed. This variation could be explained by racial and environmental factors. These factors were difficult to be analyzed in Asia, Africa [6,18]. It is well known that; lymphoma subtyping may be helpful in prognostication and prediction of outcome [20]. Hence, we conducted this study to characterize the distribution of malignant lymphomas in central region of Libya, and to demonstrate their clinic -pathological variations

regarding age, gender, anatomic location and occurrence of B-symptoms with different subtypes of malignant lymphomas.

Materials and Methods

The study group enrolled all cases of lymphomas registered over a period of 7 years (2004-2010) at National Cancer Institute – Misurata. History, clinical examination, laboratory tests and radiological workup were done in all cases. The diagnosis of lymphoma was confirmed by biopsy from lymph nodes or involved tissues, and they were grouped as HL or NHL.

A total of 120 records were collected with diagnosis of lymphoma, and 7 files excluded from the study and the rest of the files were reviewed retrospectively. Cases of Plasma cell disorders were not included in our study. After collecting all data, lymphomas were compared in respect of age, gender, presentation, and viral serological status (HCV/HIV) of all patients.

Results

Age and sex distribution

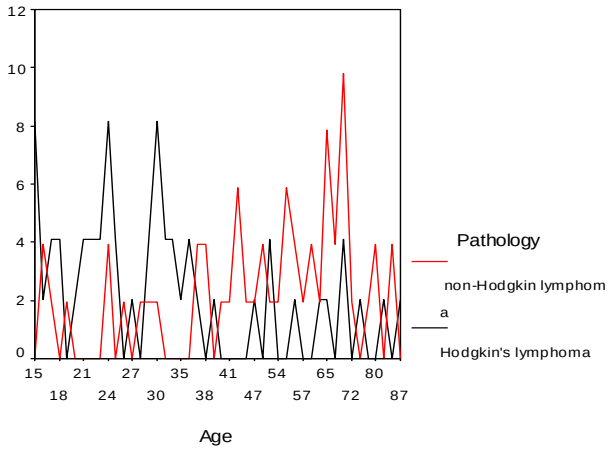
A total of 113 of lymphoma cases were registered during study period, 57of them were females and 56 were males, and female to male ratio was 1.01:1. Minimum age of patients was 15 years and maximum age 87 years (mean=45.95) (Table 1).

In study population, 68 cases (60.2%) were diagnosed as NHL and 45 cases (39.8%) were HL, and the ratio between NHL and HL was 1.5:1. In the HL group, there were 22 females and 23 males and female to male ratio was 1: 0.9. Whereas in NHL group, there were 35 females and33 males and female to male ratio was1.06:1.

Table (1) Age and sex distribution in different subtypes of Lymphomas

Subtypes of lymphoma	No.	% out of all lymphomas	Median Age (years)	Gende	
				F	M
DLBCL	27	23.8%	65	15	12
SLL-CLL	14	12.3%	72	5	9
Tcell Lymphoma	8	7%		4	4
Mantle	3	2.6%	70	2	1
Anaplastic B cell	2	1.7%	26	1	1
FL	2	1.7%	51.5	1	1
MALT	1	0.8%	*	0	1
Unspecific NHL	11	9.7%	57	7	4
NS	23	20.3%	25	11	12
MC	10	8.8%	28.5	7	3
LP	1	0.8%	*	0	1
Unspecified HL	11	9.7%	30	4	7
Total	113	100%		57	56

Figure (1): age distribution in lymphomas



Clinical presentation

In all lymphoma cases, neck lump was the major complaint in 52 cases (46%), and occurrences of B symptoms (fever >38°C, night sweats, or weight loss >10% of body weight in the last 6 months) observed in 27 cases (23.9%) and superior vena cava obstruction seen in 11 cases (9.7%). In NHL group, 20 cases were extra-nodal, bone (4cases) and skin (4 cases) were the predominant sites followed by stomach (3 cases).

Subtypes of lymphomas

In HL group, nodular sclerosis (23 cases) was the commonest subtype followed by mixed cellularity (10 cases), and one case of lymphocyte –rich, and 10 cases without definite subtyping. In NHL group, diffuse large B cell lymphoma was the commonest subtype (27 cases), followed by CLL-SLL (14 cases) then T cell lymphoma (8 cases), mantle cell lymphoma (3 cases), follicular lymphoma (2 cases), anaplastic B-cell lymphoma (2 cases), one case of MALT lymphoma, and 11 cases were titled as unspecified (Tables 1 and 2).

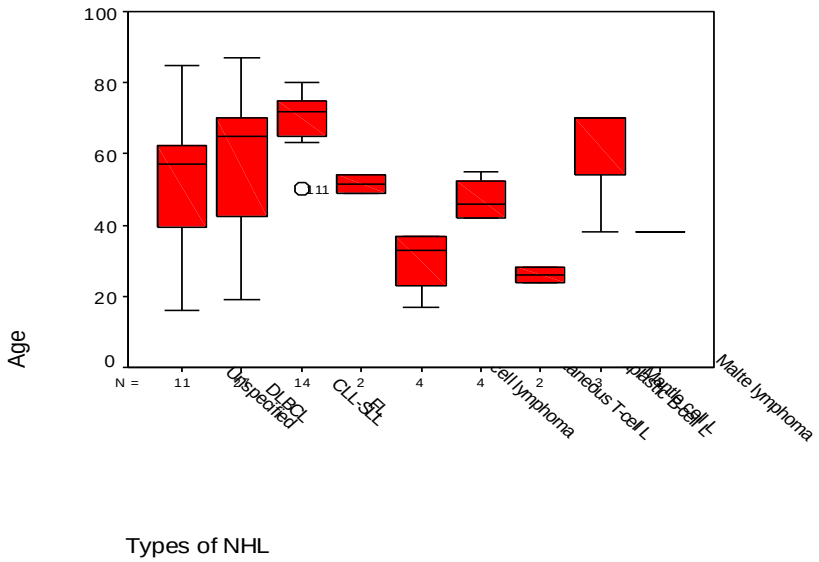
Viral serology

A total of 50 of cases (44.2%) were nonreactive to HCV and HIV while results of others were missed from the records.

Table (2) Distribution of major NHL subtypes by geographic regions (15-16) (18)

Major subtypes of NHL	**Misurata** ***(n=68)***	**Locarno** ***(n=79)***	**Greece** ***(n=801)***	**Omaha** ***(n=200)***	**London** ***(n=119)***	**Lyon** ***(n=192)***	**Capetown** ***(n=188)***	**Hong Kong** ***(n=197)***
DLBCL	40 %	36 %	47.3 %	28 %	27 %	25 %	28 %	36 %
SLL-CCL	20.5 %	5 %	6.5 %	7 %	8 %	8 %	8 %	3 %
T cell lymphoma	11 %	6 %	9.95 %	5 %	10 %	9 %	11 %	21 %
Mantle cell	4.4 %	14 %	3.6 %	7 %	7 %	7 %	1 %	3 %
FL	2.9 %	11 %	9.7 %	32 %	28 %	17 %	33 %	8 %
MALT	1.4 %	9 %	10.5 %	6 %	3 %	13 %	4 %	10 %
Anaplastic B cell	2.9 %							
others	16.1 %	10 %	10.6 %	15 %	15 %	17 %	12 %	16 %

Figure (2): age and subtypes of NHL



Discussion

In the present study, we did not find male predominance in either type of lymphomas. Such result is in contrast to most of data from Eastern Libya (BCR), Western, Asian or Arabic countries [1,2,7-9] but nearly similar to one Hungarian study in HL patients [13]. Patients with HL were younger than those with NHLs, and most of HL patients were in range of 24-30 years. No bimodal age pattern of HL was seen in our registered patients in contrast to most of international data, there is need to generate more data regarding age distribution of HL in our population for better understanding.

The incidence of HL is variable worldwide. HL accounts for 20–45% of malignant lymphomas in Western countries, but it is much less common in Asians with incidence rates of 4.4–18 % [7], and in our study, HL represents 40% of all lymphoma cases. Cervical group of lymph nodes was the commonest presenting site in all patients, and all extra-nodal lymphomas were NHL. In one study from Pakistan, 20 (32.3%) cases of NHL were presented with cervical lymph nodes [14]. Also, cervical lymph nodes group was the commonest presenting site in Saudi or Pakistani HL patients and Between 60% and 80% of patients will present with cervical and /or supraclavicular lymphadenopathy in most of the world [5-8]. Our study showed, about one-third of the NHL (20 cases out of 68) had extra-nodal presentation at diagnosis which is significant for clinicians, and concordant with the 30-40% extra-nodal presentation observed among DLBCLs in Wurzburg, Germany, and it is in contrast to Japanese reports, which showed, extra-nodal presentation was high in the young and older age-groups [11].

The frequency of extra-nodal NHL varies in different parts of the world. Studies from Western countries have reported the occurrence of extra-nodal NHL as 24-48% of all NHL. However, this figure is higher in Asia, for example, Pakistan (42%), Kuwait (45%), Japan (46.6%), Korea (55%), Thailand (58.7%), and China (44.9%-61.4%) (12). the variable frequency of extra-nodal lymphomas is possibly related to genetic, ethnic factors, as well as different definition criteria. Interestingly, the first extra-nodal site affected in our NHL group was bone or skin and then stomach, whereas the gastrointestinal tract is reported to be the most common site in the world [12]. No primary CNS lymphoma in our series. Though, it could be explained by referral bias. Our data shows 23.9 % of all lymphoma patients have B symptoms; this figure could be underestimated because most of literatures reported higher percentage approaching 50 % in both Kinds of lymphoma [13,14]. Epidemiologic studies suggest that, distribution of lymphoma subtypes differs strikingly by geographic variations. But there is a scanty information on this research in Libya, nodular sclerosis type of HL was the commonest in our series followed by mixed cellularity, similar to results from Arabic countries, Western world or Bulgaria [8,12,15,16] and different data coming from China and Pakistan where mixed cellularity is the most common type in one single institution study in each country or African countries like Tanzania [8,11,12]. DLBCL was the commonest subtype (40%) followed by SLL-CCL (20.5%) in our NHL population, also DLBCL was the commonest subtype of NHL with extra-nodal presentation while T cell lymphoma represented 11% of NHL cases.

In retrospective Jordanian study, DLBCL was the commonest subtype of NHL (28.2%) followed by follicular lymphoma (15.6%) (15), also DLBCL was the commonest in Kara-

chi (58.1 %), China (41 %), Tanzania (50.9 %), Malaysia (62.3 %), Greece (47 %), Turkey (41%) and Bulgaria (35%) and in Locarno (36%) [10-14,16] (See table 2).

It is clear that, DLBCL constitutes the commonest subtypes all over world and in our present study also. While the second top was different in our NHL group, it was SLL-CLL but in other world regions was follicular lymphoma, except South East Asia studies where T cell represents significant percent [9-20]. T cell lymphoma represents 11 % of our NHL group. There is sizeable association between HIV and B-cell lymphomas has been examined in previous studies –the increased risks reported range from 10-fold to 300-fold, the highest risks demonstrated for the aggressive NHL subtypes and the lowest for the HL [1] and the percentage of NHL cases due to HCV infection could be as high as 10% in countries with a high prevalence of HCV infection in the general population, (9) but no one was reactive for HIV or HCV in our group.

Finally, the major limitation of our study was the use of a hospital-based data with its inherent referral bias. Also, when interpreting our results, we must remember that, the variations in the incidence or subtypes of lymphomas reported in different studies might be due to methodological issues –some do not include precursor's disorders and multiple myeloma in the group of lymphomas, which may alter the distribution pattern.

Conclusion

The present study demonstrated that, cases of HL and NHL are nearly equal in number with no male predominance in either group except mixed cellularity where was more common in females or SLL-CLL which was commoner in males than females. No bimodal age pattern was found in HL group. Cervical lymphadenopathy was the most common presenting symptom in our patients and HL patients represent 40 % of our series. Nodular sclerosis was the commonest subtype of HL followed by mixed cellularity. DLBCL was the commonest subtype of NHL. Bone and skin followed by stomach were the commonest extra-nodal sites in NHL. All patients of T cell lymphoma (11% of NHL) in patients younger than 40 years and no one of our patients were reactive for HIV or HCV.

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