

## PREVALENCE OF LYMPHOMA IN CORRELATION WITH CLINICOPATHOLOGICAL PARAMETERS INCLUDING (AGE, GENDER, SITE AND SUBTYPE)

Dr. Ibrahim Sinan Abdulfattah\*<sup>1</sup> and Professor Dr. Khitam Razzaq Kadhim<sup>2</sup>

<sup>1</sup>MBChB, Final Year Resident of Arab Board of Histopathology, Medical City, Teaching Laboratories, Baghdad, Iraq.

<sup>2</sup>Department of Pathology and Forensic Medicine College of Medicine / University of Baghdad.

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\*Corresponding Author: Dr. Ibrahim Sinan Abdulfattah

MBChB, Final Year Resident of Arab Board of Histopathology, Medical City, Teaching Laboratories, Baghdad, Iraq.

### ABSTRACT

**Introduction:** Lymphoma considered as one of blood malignancies that progress from lymphocytes. Moreover, identified as lymphoid neoplasms, have variable clinical, histology, immunophenotypes, and genetic anomalies. The aim of study is to detect the frequency of lymphoma and to correlate with clinicopathological parameters including (age, gender, site and subtype). **Method:** A retrospective study was performed on 190 patients with lymphoma, from January 2018 to December 2021 at the departments of pathology in Teaching laboratories and Ghazi Al Harriri hospital, Medical city, Baghdad, Iraq. Clinicopathological parameters: Age, gender, site, subtype. **Results:** 100 cases of Hodgkin lymphoma and 90 cases of non Hodgkin lymphoma, the mean age of patients with Hodgkin lymphoma (HL)  $27 \pm 16$  years old, the mean age of patients with Non Hodgkin lymphoma (NHL)  $48 \pm 21$  years old. distribution of patients have (HL) according to age groups, (28%) of patients at age group 11-20 years old while (23%) of patients at age group 21-30 years old. Distribution of patients have (NHL) according to age groups, (35.56%) of patients at age group >60 years old while (20%) of patients at age group 41-50 years old. There is significant association between HL, NHL and (age groups of patients, lymph node site). There is significant association between HL, NHL subtypes and (age groups of patients, lymph node site). **Conclusion:** The most common age group for HL is 11-20 years, while the most common age group for NHL is >60 years. Lymphoma occurs more frequently in the lymph nodes above the diaphragm as well as in patients with HL. The most common age group for NPLHL is 11-20 years and 41-50 years, and most cases occur in the lymph nodes above the diaphragm.

**KEYWORDS:** Prevalence, lymphoma, clinicopathological parameters, age, gender, site, subtype.

### INTRODUCTION

Lymphoma considered as one of common blood malignancies that originate from lymphocytes. Identified as lymphoid neoplasms, have variable clinical, histology, immunophenotypes, and genetic anomalies.<sup>[1]</sup> Lymphomas are common malignancy, it is the 6<sup>th</sup> most public of malignancies global in both males and females, affecting more men than women within the age from 1 to 85 years but topping occur in second decades.<sup>[2,3]</sup> The maximum rates of about 68,000 patients/year are detected in North America while the lowermost rates are detected in Asia with an incidence rate of about 6.1.<sup>[4]</sup> Lymphoma incidence has an increase about 3-4% yearly.<sup>[5]</sup> The etiology of maximum kinds of lymphoma is not obviously assumed but numerous risk elements have been recognized. These risk factors are “acquired

immunodeficiency syndrome (AIDS), Epstein-Barr virus (EBV), little socio-economic grade, increase age, gender, family history of malignances, nutritional, and ecological reasons”<sup>[6,7]</sup> Lymphomas categorized as Hodgkin’s lymphoma (HL) or non-Hodgkin’s lymphoma (NHL) according to the appearance or nonappearance of the Reid Sternberg (RS) cell on histology. HL and NHL are additional classified into individual objects, predictive, and epidemiological features, with fluctuating reactions to management. NHL sub kinds include “Burkitt’s lymphoma (BL), diffuse large B cell lymphoma (DLBCL), anaplastic large cell lymphoma, lymphoblastic lymphoma, small lymphocytic lymphoma, and marginal zone B cell”<sup>[8,9]</sup> World Health Organization organize the hematopoietic and lymphoid tissues malignancies, characterizes a international agreement on the finding of these cancers.<sup>[10,11]</sup> The aim

of study is to detect the frequency of lymphoma and find correlate with clinicopathological parameters including (age, gender, site and subtype).

**METHOD**

A retrospective study was performed on 190 patients with lymphoma, from January 2018 to December 2021 at the departments of pathology, Teaching laboratories, Ghazi Al Harriri hospital, Medical city, Baghdad, Iraq. Clinicopathological parameters: Age, gender, site, subtype. Statistical analysis done by SPSS 22, frequency and percentage used for categorical data, mean, median and SD for continuous data. Chi-square used for assessed association between variables, person correlation show the correlation between continuous data. P-value less or equal to 0.05 is consider significant.

**RESULTS**

In the 190 patients, 100 with Hodgkin lymphoma and 90 with non Hodgkin lymphoma, the mean age of patients with Hodgkin lymphoma (HL)  $27 \pm 16$  years old, the mean age of patients with Non Hodgkin lymphoma (NHL)  $48 \pm 21$  years old. Patients with HL 39 (39%) of them are females and 61 (61%) of the male. 82(82%) of patients have lymph node site above the diaphragm, 98(98%) of patients have classical HL. While (patients with NHL); 30(33.3%) of them are females and 60(66.7%) are males. 49(54.4%) of patients have lymph node site above the diaphragm, 65(72.2%) of patients have high grade NHL.

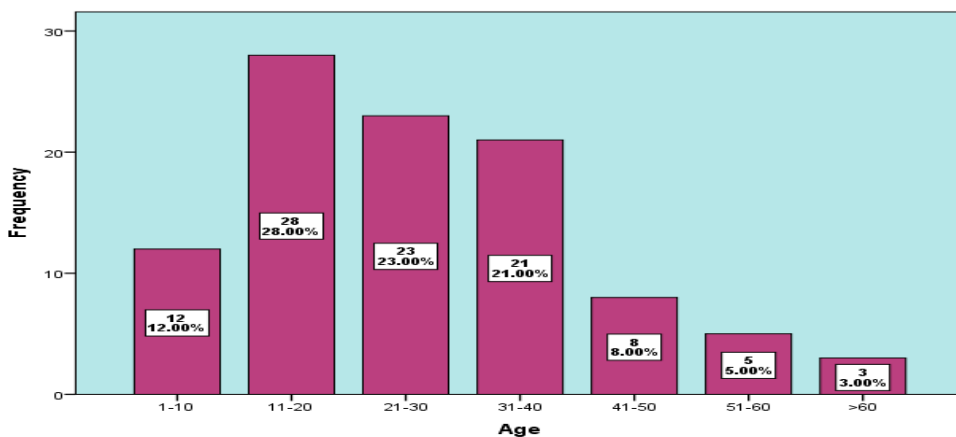
**Table (1): Distribution of patients have (HL and NHL) according to (gender of patients, age of patients, lymph node site).**

Hodgkin lymphoma		No.	%
Gender	Female	39	39.0
	Male	61	61.0
lymph node site	Above the diaphragm	82	82.0
	Below the diaphragm	15	15.0
	Others*	3	3.0
subtype	Classical Hodgkin	98	98.0
	NLPHL	2	2.0
Non Hodgkin lymphoma			
Gender	Female	30	33.3
	Male	60	66.7
lymph node site	Above the diaphragm	49	54.4
	Below the diaphragm	22	24.4
	Others*	19	21.2
subtype	high grade NHL	65	72.2
	low grade NHL	25	27.8

\*others (skin, bone, breast, gastrointestinal tract)

Distribution of patients have (HL) according to age groups, 28(28%) of patients at age group 11-20 years old while 23(23%) of patients at age group 21-30 years old. Distribution of patients have (NHL) according to age

groups, 18(20%) of patients at age group 41-50 years old while 32(35.56%) of patients at age group >60 years old, as shown in fig (1, 2).



**Fig. (1): distribution of patients have (HL) according to age groups.**

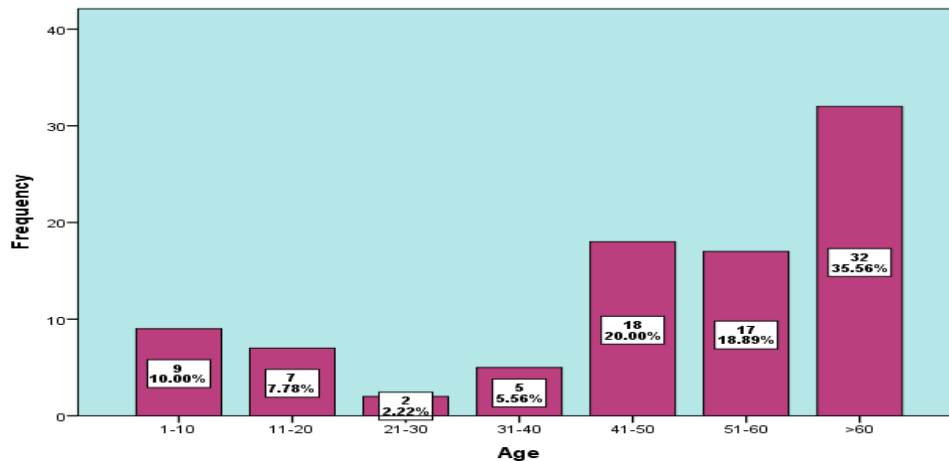


Fig. (2): distribution of patients have (NHL) according to age groups.

As shown in table 2; there is significant association between HL and NHL and age groups of patients, 28(28%) of patients with HL at age group 11-20 years, 23(23%) of patients with HL at age group 21-30 years old while 32(35.6%) of patients with NHL at age > 60

years. 82(82%) of patients with HL have lymph node above the diaphragm while 49(54.4%) of patients with NHL have lymph node above the diaphragm. No significant association between HL and NHL and gender.

Table (2): Association between HL and NHL with (gender of patients, age of patients, lymph node site).

variables		HL	NHL	P-value
Gender	Female	39	30	0.45
	Male	61	60	
	Total	100	90	
Age	1-10	12	9	0.0001
	11-20	28	7	
	21-30	23	2	
	31-40	21	5	
	41-50	8	18	
	51-60	5	17	
	>60	3	32	
Total	100	90		
Lymph node	Above the diaphragm	82	49	0.0001
	Below the diaphragm	15	22	
	others	3	19	
Total	100	90		
		100.0%	100.0%	

P-value ≤ 0.05 (significant).

As shown in table 3; there is significant association between HL and NHL subtypes and age groups of patients, 27(27.6%) of patients with classical HL at age group 11-20 years, 1(50%) of patients with NLPHL at age group 11-20, 41-50 years old while 24(36.9%), 8(32%) of patients with high grade NHL and low grade NHL at age > 60 years respectively, 2(100%) of patients

with NLPHL have lymph node above the diaphragm, 80(81.6%) of patients with classical HL have lymph node above the diaphragm, while 18(72%) of patients with low grade NHL have lymph node above the diaphragm. No significant association between (HL and NHL) subtypes and gender.

**Table (3): association between HL and NHL with (gender of patients, age of patients, lymph node site).**

variables		Subtype				P-value
		Classical Hodgkin	high grade NHL	low grade NHL	NLPHL	
<b>Gender</b>	<b>Female</b>	38	22	8	1	0.85
	%	38.8%	33.8%	32.0%	50.0%	
	<b>Male</b>	60	43	17	1	
	%	61.2%	66.2%	68.0%	50.0%	
	<b>Total</b>	98	65	25	2	
	%	100.0%	100.0%	100.0%	100.0%	
<b>Age</b>	<b>1-10</b>	12	8	1	0	<b>0.0001</b>
	%	12.2%	12.3%	4.0%	0.0%	
	<b>11-20</b>	27	3	4	1	
	%	27.6%	4.6%	16.0%	50.0%	
	<b>21-30</b>	23	0	2	0	
	%	23.5%	0.0%	8.0%	0.0%	
	<b>31-40</b>	21	4	1	0	
	%	21.4%	6.2%	4.0%	0.0%	
	<b>41-50</b>	7	13	5	1	
	%	7.1%	20.0%	20.0%	50.0%	
	<b>51-60</b>	5	13	4	0	
	%	5.1%	20.0%	16.0%	0.0%	
	<b>&gt;60</b>	3	24	8	0	
	%	3.1%	36.9%	32.0%	0.0%	
	<b>Total</b>	98	65	25	2	
	%	100.0%	100.0%	100.0%	100.0%	
<b>Lymph node</b>	<b>above</b>	80	31	18	2	<b>0.0001</b>
	%	81.6%	47.7%	72.0%	100.0%	
	<b>below</b>	15	19	3	0	
	%	15.3%	29.2%	12.0%	0.0%	
	<b>others</b>	3	15	4	0	
	%	3.1%	23.1%	16.0%	0.0%	
	<b>Total</b>	98	65	25	2	
	%	100.0%	100.0%	100.0%	100.0%	

**P-value ≤ 0.05 (significant).**

## DISCUSSION

Many studies concern the distribution of lymphoma in the world, to know the epidemiologic characteristics of lymphoid neoplasms according to the WHO classification we must they observed the comprehensive cases of malignant lymphoma diagnosed at a single hospital over 5 years.<sup>[11,12]</sup>

In current study distribution of patients have (HL) according to age groups, (28%) of patients at age group 11-20 years old while (23%) of patients at age group 21-30 years old. Distribution of patients have (NHL) according to age groups, (35.56%) of patients at age group >60 years old while (20%) of patients at age group 41-50 years old. (patients with HL); 39% of them are

females and 61% of the male. (82%) of patients have lymph node site above the diaphragm, (98%) of patients have classical HL. While (patients with NHL); 33.3% of them are females and 66.7% of the male. (54.4%) of patients have lymph node site above the diaphragm, (72.2%) of patients have high grade NHL. This is similar to other studies which stated that the median diagnosis age of all these lymphoma patients was 53 (1–99) years, and the median ages for NHL and HL were 54 (1–99) years and 38 (5–84) years, respectively. Patients between 55 and 64 years had higher incidence of NHL than other age groups. Of all NHL cases, AITL had the oldest median age of 63 years, while LBL with the youngest median age of 22 years was prone to involve in youth.<sup>[11]</sup> In this study, the biopsy sites of 985 cases were lymph

nodes (48.6%), whereas 1042 cases (51.4%) were diagnosed on extranodal biopsies. HL was most commonly diagnosed on a lymph nodal specimen (90.1%), while NHL was commonly diagnosed on an extranodal specimen (55.1%). Different distributions of NHL subtypes in terms of nodal and extranodal sites.<sup>[11]</sup> Afterward histological keying, (85%) had lymphoma, (26%) in the children and (74%) in adult. NHL detected in (80%), whereas (16%) were detected as the classic HL and no patients detected as “nodular lymphocyte predominance Hodgkin lymphoma (NLPHL)”. (55%) diagnosed are men while (45%) are females.<sup>[12]</sup> Lymphoma occur in age 1-84 years, male mean age 30 years while the peak seen in children below 15 years (26%) then middle-aged patients. Nodal association was further public than extra nodal involvement and the mostly involve lymph nodes were cervical while the minimum included were epitrochlear. The wildly extra nodular place that involved was abdominal.<sup>[5,13,14]</sup> HL instituted 8.0% of all identified lymphomas, which is alike to earlier paper in China (8%).<sup>[11]</sup> Japan (7%).<sup>[15]</sup> a peak age of 25–34 years and a second peak age of 55–64 years.<sup>[16]</sup> Classical HL affected the young people in 1<sup>st</sup> – 2<sup>nd</sup> decade of life. Only the classical type of HL (CHL) was observed and its subtypes were mainly nodal. It may be deduced that CHL generally affects young people in their first and second decades of life. The nonappearance of “nodular lymphocyte predominance Hodgkin lymphoma (NLPHL)” is due to infrequency of HL internationally.<sup>[2,17,18]</sup> The epidemiology of HL shows numerous detailed designs of age-incidence, according to the socioeconomic of the people.<sup>[19,20]</sup> Lymphomas are varied, information on the special localization of each kind will assistance in initial clinical finding, a lymphoma chiefly related with inguinal lymph nodes in a man below 60 years is further commonly CHL or NLPHL likened with older men where it is further probable CHL. Among women that are 60 years and more, the utmost common identification related with an inguinal site is FL. Remarkably, FL is further common in inguinal places among women than men. An intraparotid lymphoma was identified as NLPHL in 66% of patients, while the general prevalence of this sub kinds was 9%. So lymphomas may have special primary places of participation.<sup>[21]</sup> Gender alterations seen for lymphoma incidence and age at identification, no statistically significant endurance differences between men and women were distinguished. This outcome is in wide agree with cancer registry findings.<sup>[22]</sup>

## CONCLUSION

The most common age group for HL is 11-20 years, while the most common age group for NHL is >60 years. Lymphoma occurs more frequently in the lymph nodes above the diaphragm as well as in patients with HL. The most common age group for NLPHL is 11-20 years and 41-50 years, and most cases occur in the lymph nodes above the diaphragm.

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