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The Survival of Nodal Non-Hodgkin's Lymphoma Patients in the West of Iran

Mehrdad Payandeh[1], Masoud Sadeghi[1,2,*], Ali Shahriari-Ahmadi[3], Edris Sadeghi[1,2]

[1]Medical Biology Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran
[2]Student Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran
[3]Rasool-Akram Hospital, Oncology and Hematology ward, Iran University of Medical Sciences, Tehran, Iran
*Corresponding author: Sadeghi_mbrc@yahoo.com

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Abstract **Background**: Most non-Hodgkin's lymphomas (NHL) arise in lymph nodes or other lymphatic tissues such as the spleen, Waldeyer's ring and thymus. The aim of study is to evaluate the survival in nodal NHL patients for the first time in the west of Iran. **Patients and Methods:** Fifty-three patients with nodal NHL referred to Our Clinic from 2002-2014. We checked age, sex, histopathology reports, anatomic sites and survival for them. One representative Material of patients with diffuse large B-cell lymphoma (DLBL), FL, SLL and anaplastic lymphoma was re-classified after revision. The overall survival (OS) was plotted by GraphPad Prism 5 software. **Results**: For all patients, the median age at diagnosis was 52±16.92 (range, 16-92 years) that 26 patients (49.1%) had age≤50 years. Thirty-four patients (64.2%) were male. Involvement anatomic sites were axillary, neck, inguinal, cervical, mediasten, bone marrow, abdominal, bladder, tonsil and supraclavicular for 11 patients (20.6%), 9(17%), 9(17%), 8(15.2%), 6(11.3%), 5(9.4%), 2(3.8%), 1(1.9%), 1(1.9%) and 1(1.9%), respectively. The 3-year, 5-year and 10-year survival rates are 65%, 54.2% and 51%, respectively. **Conclusion**: The OS in this study is higher than a number of studies and the median age is lower. Also, the male-to-female ratio for nodal lymphoma is higher than other studies and nodal NHL patients accrue more in males.

Keywords: *NHL, nodal lymphoma, overall survival, DLBCL*

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1. Introduction

The incidence rate for all non-Hodgkin's lymphomas combined, varies from a low of 2 per 100,000 per year in Thailand (based on 723 cases), to about 10 per 100,000 in whites in the USA (based on 30,855 cases) [1]. Most non-Hodgkin's lymphomas (NHL) arise in lymph nodes or other lymphatic tissues such as the spleen, Waldeyer's ring and thymus [2,3].

In the Comprehensive Cancer Centre West (CCCW) NHL registry, we were also confronted with the problems associated with the definition of primary extranodal NHL as outlined above, especially in patients with disseminated disease at both nodal and extranodal sites. For these patients, a third pattern of presentation was proposed: extensive disease [4,5]. NHL is both clinically and biologically a heterogeneous disease comprising of divergent groups of indolent and aggressive tumors. Indolent lymphomas are slow growing with relative resistance to chemotherapy and include mainly Small lymphocytic lymphoma (SLL), Marginal zone lymphoma (MZL), low grade Follicular lymphoma (FL) and Mantle cell lymphoma (MCL) whereas aggressive lymphoma category comprise of Diffuse large B cell lymphoma (DLBCL), Burkitts lymphoma (BL) and Lymphoblastic lymphoma [6].

The aim of study is to evaluate the survival in nodal NHL patients for the first time in the west of Iran.

2. Patients and Methods

Fifty-three patients with nodal NHL referred to Our Clinic, Kermanshah City, Iran, from 2002-2014. We checked age, sex, histopathology reports, anatomic sites and survival for them.

Once a diagnosis of NHL was made by the hospital pathologist, slides and frozen material were sent for review to a panel of four regional pathologists, experienced in hemato-pathology. Immunohistochemical (IHC) stains using antibodies against CD 20, CD 3, CD 10, CD 5, CD 23, BCL2 and cyclinD1 were done in each case. The cases were diagnosed by morphology on H and E sections and IHC profile according to WHO classification of lymphoid neoplasms by senior histopathologists. At last, nodal patients entered to our study.

One representative Material of patients with DLBCL, follicular lymphoma(FL), small lymphocytic lymphoma(SLL) and anaplastic lymphoma was re-

classified after revision. The OS was plotted by GraphPad Prism 5 software.

3. Results

For all patients, the median age at diagnosis was 52±16.92 (range, 16-92 years) that 26 patients (49.1%) had age≤ 50 years and 27(50.9%) had age>50 years (Table 1). Thirty-four patients (64.2%) were male and 19(35.8%) were female. Histopathology reports showed that 43 patients (81%), 5(9.5%), 4(7.6%) and 1(1.9%) had DLBCL (Figure 1), FL, SLL and anaplastic lymphoma, respectively. Involvement anatomic sites were axillary, neck, inguinal, cervical, mediasten, bone marrow, abdominal, bladder, tonsil and supraclavicular for 11 patients(20.6%), 9(17%), 9(17%), 8(15.2%), 6(11.3%), 5(9.4%), 2(3.8%), 1(1.9%), 1(1.9%) and 1(1.9%), respectively.

Table 1. the characteristics for Nodal Non-Hodgkin's Lymphoma(n=53)

Characteristics	n(%)	Median ±SD	Range
Age(year)			
Age group(year)			
≤50	26(49.1)		
>50	27(50.9)		
Sex			
Male	34(64.2)		
Female	19(35.8)		
Histopathology			
DLBCL	43(81)		
FL	5(9.5)		
SLL	4(7.6)		
Anaplastic lymphoma	1(1.9)	52±16.92	16-92
Anatomic sites(lymph node)			
Axillary	11(20.6)		
Inguinal	9(17)		
Neck	9(17)		
Cervical	8(15.2)		
Mediasten	6(11.3)		
Bone marrow	5(9.4)		
Abdominal	2(3.8)		
Bladder	1(1.9)		
Tonsil	1(1.9)		
Supraclavicular	1(1.9)		

DLBCL: diffuse large B cell lymphoma, FL: follicular lymphoma, SLL: small lymphocytic lymphoma

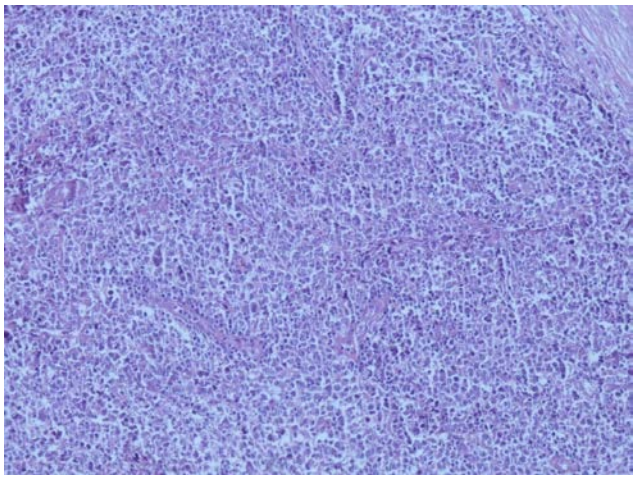

Figure 1. Histopathology image for Diffuse large B-cell lymphomas (×100)

The Figure 2 shows 3-year, 5-year and 10-year overall survival (OS) for all patients. The 3-year, 5-year and 10-year mean survivals are 25.5, 33.5 and 47.5 months, respectively. Also, the 3-year, 5-year and 10-year survival rates are 65%, 54.2% and 51%, respectively.

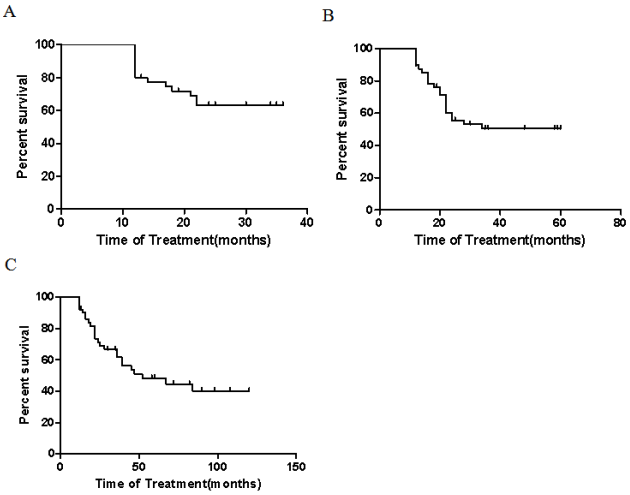

Figure 2. The overall survival for all patients (A) 3-year (B) 5-year (C) 10-year

The 3-year, 5-year and 10-year OS for all patients based on sex has been written in Figure 3. There was no significant correlation between male and female for 3-year, 5-year and 10-year periods (P>0.05). The 3-year, 5-year and 10-year mean survival was 24.9, 33.4 and 47.1 months for males and also 27.3, 33.7 and 48.4 months for females, respectively. The 3-year, 5-year and 10-year survival rates were 64.2%, 56.3% and 52.9% for males and also 66.7%, 50% and 47.1% for females, respectively.

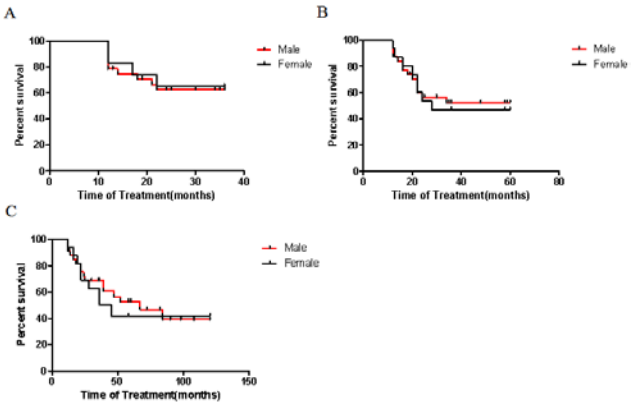

Figure 3. The overall survival for all patients based on sex (A) 3-year (B) 5-year (C) 10-year

The 3-year, 5-year and 10-year OS for all patients based on age group has been written in Figure 4. There was no significant correlation between patients with age≤ 50 years and age>50 years for 3-year, 5-year periods (P>0.05), but was significant correlation between age groups for 10-year period (P=0.030). Therefore, survival for age group>50 years is shorter and mortality is higher. The 3-year, 5-year and 10-year mean survival was 26.5, 35.3 and 57.1 months for age group≤ 50 years and also 24.6, 31.8 and 38.4 months for age group>50 years, respectively. The 3-year, 5-year and 10-year survival rates were 76.2%, 66.7% and 64% for age group≤ 50 years and also 52.6%, 41.7% and 38.4% for age group>50 years, respectively.

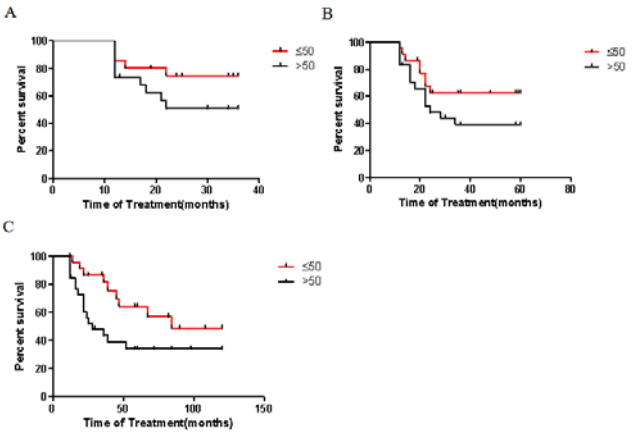

Figure 4. The overall survival for all patients based on age group (A) 3-year (B) 5-year (C) 10-year

4. Discussion

The male-to-female ratio for nodal lymphomas in North American whites was 1.4:1 and for all extra-nodal lymphomas combined was 1.5:1. This ratio varied by individual site, but only lymphoma of the thyroid was more common in women (0.4:1; excluding sex specific sites) [1]. Also, with increasing of age, incidence of nodal NHL go higher [1]. Other studies reported that Male to female ratio for NHL was 1.4:1 [7]. The male-to-female ratio for nodal lymphoma in this study was 1.78:1. Therefore, nodal NHL patients accrue more in males.

NHL patients in a study ranged in age from 15 to 91 years (median, 63) that overall 5-year survival was 42% [8]. An analysis of prognostic factors has been performed on 260 patients with high and intermediate grade NHL that the overall 5-year survival rate was 50% [9]. Other study showed that median age for extra nodal NHL was 67 years (range, 7-94) [10]. A study on patients with primary nodal statue showed that the 5-year OS and the 10-year OS were around 19-23% and 38-41%, respectively [2]. In our study, the median survival was 52 years for nodal NHL that this median age is lower than other studies and also the 5-year survival rate was 54.2% that survival rate in this study is higher than a number of studies but in other study, the 5-year OS for NHL patients was 85.8% [11]. The 10-year survival in this study is higher than the 5-year survival in a number of studies. Therefore, mortality after 5 years in extra nodal NHL patients is less compared to the first 5-year. In this study, there is no significant correlation between sex with the OS but there was for age group. Therefore for age group≤ 50 years, 10-year survival was better than age group>.50 years.

The most frequent sites were cervical lymph nodes (36.8% of all cases), inguinal lymph nodes (16.4%), axillary lymph nodes (11.9%), and supraclavicular lymph nodes (11%) [12]. In our study, the most frequent sites were axillary lymph nodes(20.6%), inguinal lymph nodes(17%), neck lymph nodes(17%) and cervical lymph nodes(15.2%) but supraclavicular lymph nodes was the lowest(1.9%).

Compared to the western and Middle East countries, low incidence of DLBCL among Asians and high incidence of NK/T cell lymphomas at head neck region possibly explains these diversities [12]. A study showed that DLBCL was the most common lymphoma for NHL patients [7]. In this study DLBCL had the most frequency (81%) but there is no T-cell.

5. Conclusions

The OS in this study is higher than a number of studies and the median age is lower. Also, the male-to-female ratio for nodal lymphoma is higher than other studies and nodal NHL patients accrue more in males.

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