Retrospective clinical study of Non–Hodgkin Lymphoma in Head and Neck

Mustafa Mohammed Abdulhussain, Ali Sami Muhsin

Department of Oral Pathology, College of Dentistry, Mustansiriyah University, Baghdad, Iraq

Abstract – Non-Hodgkin lymphoma (NHL) is the most common hematological malignancy. In the past few decades, the incidence of Non-Hodgkin lymphomas was raised in the world. The aim of this retrospective clinical study was to evaluate the special clinical parameters of patients with NHL in head and neck and to assess the incidence in different age groups. The retrospective study presents 121 files of patients immunohistologically diagnosed with NHL of head and neck. The patient files were obtained from the archives and the clinical parameters such as age, sex and site of the lesions were evaluated. A total number of 121 patients, 74(61.2%) men and 47(38.8%) women with a non-Hodgkin lymphoma in the head and neck area were evaluated and analyzed from 2010 to 2018. The higher incidence of NHL of head and neck was presented in age group of less than 40 years 45(37.2%) cases. In regarding to lesions site, the neck was the more incidence than other parts 27(22.3%) cases. The more incidence of high grading lesion was in age group less than 40 years 19(15.7%) cases. In this study, the NHL of head and neck comprised 32.9% of all hematological malignancies and the vast majority cases were in the age group > 40 years and rarely occurred in the oral cavity and the mixed large and small B cell lymphoma subtype was the most common form. The survival lymph nodes were the most common site followed by tonsils.

Keywords: Non-Hodgkin lymphoma, Survey, Head and Neck, Clinical parameters, Grading.

1. Introduction

Lymphomas are malignant neoplasms of immune system developed if there are any somatic mutations in lymphocyte progenitor cells during their development. In depending on spectrum of their behavior, they constitute a proliferated heterogeneous group. They can be classified into Hodgkin’s lymphoma and Non-Hodgkin lymphoma and can be ranged from non-aggressive to highly aggressive disease [1]. Non-Hodgkin lymphomas (NHL) are diverse group of disease that arise from lymphocytes proliferation with different clinical and histological presentations. Their ratio for about 3% of all malignancies of worldwide [2,3]. However, about 25-30% of NHL incidence in extranodal sites [1]. In all the world, there are increasing of incidence of NHL reach to up to 35% [4,5]. However, some studies present and increasing in survival rates 30-50.8% in 5-years [6]. The non-lymphatic structures of head and neck areas, gastrointestinal tract, skin, central nervous system and bone are involved with NHL as an extranodal locations. Very rare occurrence of NHL in oral structures which presents only 2% of all extranodal lymphomas [7]. NHL has more predilection for men than women and the occurrence raises from the 5th to 7th decades of life [8]. Some researchers showed that significant differences in the occurrence rates of NHL of worldwide [9]. The immunosuppression is considered the most well-known predisposing factor of NHL, in addition to other factors such as primary disorders of immune system, organ-transplantation, HIV/AIDS, infectious agents (EBV, HHV8, Helicobacter pylori), autoimmune and other chronic inflammatory diseases [10].

2. Materials and Methods

From March 2010 to December 2018, 121 patients with immunohistochemically confirmed malignant Non-
Hodgkin Lymphoma were referred to the Specialist Surgeries Hospital, Medical city, Baghdad, Iraq. All the reports recorded in this 8 years' period were observed and studied carefully and 121 immunohistochemically proven cases of malignant (NHL) were found from a total of 368 reports of blood cancers. The data of age, gender, anatomical area of tumor, subtypes and grading were extracted from this report. To keep the privacy of patients, all the informations were recorded anonymously. The collected and recorded data were analyzed using descriptive statistics such as mean, standard deviation, frequency tables by SPSS software, version 16. All epidemiological data of cases were collected and the age, sex, site of occurrence, and grading were evaluated and analyzed. The t-test, the Chi-Square-test and the exact Fisher’s test were used for statistical analysis. The statistically significant of p-value was < 0.05.

3. Results

In present study, the records of histopathological biopsy specimens were studied which included 368 biopsies specimens of the blood cancer lesions. It was observed an incidence of Non-Hodgkin Lymphoma of head and neck areas were 121(32.9%) for 8 years' period. The mean age was (42.8 ± 23) years (range, 2 to 85). The peak incidence of NHL was observed in age groups < 40 years 45(37.2%) cases. In regarding to gender, the men more incidence than women with ratio was 1.6: 1. The variable of gender; for men the highest incidence was in age groups < 40 years old 32 (26.5%) cases, and the lowest was among > 60 years old 20(16.5%) cases. But, for women the highest frequency was in age groups 40-60 years old 20(16.5%) cases and also the lowest was among <40 years old 13(10.7%) cases. (Table 1). According to lesion site, the neck was more incidence of NHL than other areas 27(22.3%) cases and then the tonsil 26 (21.5%) cases, while the less incidence of was in the tongue 1(0.9%) cases and the palate 1(0.9%) cases (Table 2), (Figure 1). Ninety patients were cured with combined therapy; surgery, radiation and chemotherapy. The remain other patients with unknown results. Each case in this study was histologically analyzed and the interpretation of the lesion grading was made. The highest incidence of low-grade cases was between 40-60 years of age groups 10(8.3%), while the highest incidence of both intermediate and high-grade cases was in < 40 years of age groups 22(18.2%), 19(15.7%). (Table 1), (Fig. 2).

Table 1: The incidence of Non-Hodgkin Lymphoma of head and neck in the gender, grading according to age groups with the percent.

<table>
<thead>
<tr>
<th>Gender</th>
<th>&lt; 40(%)</th>
<th>40 - 60(%)</th>
<th>&gt; 60(%)</th>
<th>Total(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>32(26.5%)</td>
<td>22(18.2%)</td>
<td>20(16.5%)</td>
<td>74(61.2%)</td>
</tr>
<tr>
<td>Women</td>
<td>13(10.7%)</td>
<td>20(16.5%)</td>
<td>14(11.6%)</td>
<td>47(38.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>45(37.2%)</td>
<td>42(34.7%)</td>
<td>34(28.1%)</td>
<td>121(100%)</td>
</tr>
</tbody>
</table>

F-test = 0.51 Non-significant

<table>
<thead>
<tr>
<th>Grading</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>4(3.3%)</td>
<td>10(8.3%)</td>
<td>6(5.0%)</td>
<td>20(16.5%)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>22(18.2%)</td>
<td>20(16.5%)</td>
<td>17(14.0%)</td>
<td>59(48.8%)</td>
</tr>
<tr>
<td>High</td>
<td>19(15.7%)</td>
<td>12(9.9%)</td>
<td>11(9.1%)</td>
<td>42(34.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>45(37.2%)</td>
<td>42(34.7%)</td>
<td>34(28.1%)</td>
<td>121(100%)</td>
</tr>
</tbody>
</table>

Table 2: Frequency of sites of Non-Hodgkin Lymphoma of head and neck according to the distribution of age groups with the percent.
Figure 1: Frequency of Non-Hodgkin Lymphoma of head and neck according to lesion sites.

Immunohistochemically, the subtype mixed large and small B cell lymphoma was the most common form of NHL of head and neck 85(70.2%) cases and then followed by diffuse large B cell lymphoma (DLBL) was 18(14.9%) cases, diffuse small lymphocytic lymphoma (SLL) was 10(8.3%) cases, T cell type lymphoma was 4(3.3%) cases, follicular type (FL) was 2(1.7%) cases and burkitt’s lymphoma was 2(1.75) cases. The two cases of burkitt’s lymphoma were younger than 15 years of age.

4. Conclusions

Non-Hodgkin Lymphomas (NHL) represent a heterogeneous group of malignant proliferation of the lymphoid system. In present clinical study, over a period of 8 years, some informations in case sheets of patients with NHL of head and neck about clinical and histopathological factors can be obtained despite of number of patients were not enough. Since several past decades, the incidence of NHL increased continuously especially...
the large B-cell lymphoma subtype. The various structures in the head and neck region have close anatomical relationship, but the NHL in these regions are a diverse group of diseases, in addition the natural history and response to therapy of these diseases are different. In general, lymphomas account approximately 5% of all malignant cancers of the head and neck area [11]. The incidence of the subtypes of non-Hodgkin lymphoma is different in history and clinical presentation from area to area and these variations are depending upon environmental factors, such as local common viral infections including Epstein Barr virus and socioeconomic factors. [12]. According to median age and gender, one study presented 59 years and other study the median age was 46.2 years, men was more commonly affected than women. In the study of Shah et al., the median age of patients was 46.2 years with Man to women ratio of 3:2. While other study stated median age higher than 60 years. In our study, median age was 42.8 years (range 2-85 years) with man to women ratio was 1.6:1. So the results of our study agree with some studies and disagree with others. [13,14,15]. E Zucca et al study reported that the most frequently affected site of the head and neck regions was the Waldeyer ring (nasopharynx, tonsils and the base of the tongue) and the most common type of lymphoma of salivary glands and orbit was low grade B cell lymphoma of MALT type. In addition to that the NHL represents the majority of lymphoma in head and neck reach to (65-70%) [16]. While other studies present that the salivary glands were the most common site (41%) and also in the both mandible and maxilla with 41%, but the remaining NHLs were in the paranasal sinus and the orbit, so this is consistent with our study [17]. Some researchers presented that non pathognomic swelling was the most common symptom of NHL of head and neck, (75%) of cases were with swelling, this is accordance with previous studies and present our study [15]. In 2014, Mertsoylu H et al study showed that the most common histological subtype of NHL was diffuse large B cell lymphoma (DLBCL), but the other subtypes were rare types. This result was consistent with previous studies such as Wotherspoon AC et al study [18,19]. Similar to other studies that state the DLBCL (45.0%) is the most common subtypes and among T-cell subtype is ALCL (15.0%), but these results not consistent with our study results that presented the most common subtypes was mixed large and small B cell lymphoma 85(70.2%)cases [20,21]. While in other countries such as India, there is a difference in the prevalence of NHL subtypes compared to Europe, USA and other Asian countries [22]. Sader-Ghorra et al observed that the most common subtypes were B-cell lymphomas, whereas T-cell lymphomas were fewer common subtypes as in our results [23]. Other study showed that the DLBCL was the most common subtype followed by follicular lymphoma, anaplastic large cell lymphoma, peripheral T-cell lymphoma, and small lymphocytic lymphoma and the most of them occurred in immunocompetent individuals [18,24]. According to Teruya-Feldstein et al, the plasmablastic subtypes were the most common subtype seen in immunocompromised individuals [25]. The NHL of head and neck that related to risk of AIDS is inversely related to CD4 cell account, although these relationships differ from one type to other [26,27]. There was an association between the developed NHL and the processed red meat, while a weak association with certain genetic polymorphism [28]. During the diagnosis of NHL to detect the underlying cause, several factors should be considered in addition to histopathological examination of biopsy specimen, fungal stain, gram stain and immunohistochemistry studies [29]. The NHL of head and neck areas can be treated with Chemotherapy, radiotherapy, or both of them according to stage of disease, so Van der Waal et al. study used only radiotherapy for stage I oral NHL and combination therapy was used for other stages as in present study to treat the indolent and aggressive lymphoma [14]. In order to evaluate the response to treatment of NHL, the standard criteria currently used that established by the International Working Group in 1999[30]. Immunohistochemistry study can be used for NHL subtyping, prognostication, and the potentially targeted therapy [31].

5. Conclusions

In conclusion, the NHL of head and neck comprised 32.9% of all hematological malignancies and the vast majority cases of NHL in head and neck regions were in the age group > 40 years and rarely occurred in the oral cavity and the mixed large and small B cell lymphoma subtype was the most common form of NHL in head and neck. The survical lymph nodes were the most common site followed by tonsils and any mass at the neck should be properly diagnosed by histopathological examination to establish early detection of disease to enable specific treatment. In addition to these findings, the results of this study such as median age, gender, site of lesion and histopathological subtype were agreed with some studies and disagreed with others.
according to areas. The stage of disease determines the treatment of NHL with chemotherapy, radiotherapy or both of them.

6. References


Head and neck, central nervous system and other less common sites Annals of Oncology 1999 ;10: 1023-1033.


This work is licensed under a Creative Commons Attribution Non-Commercial 4.0 International License.