Individual Characteristics of Patients with Leukemia or Lymphoma in Hamedan - Northwestern Iran

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Abstract**—**There are studies indicating the increasing prevalence of blood cancers in Iran. The aim of this study was to determine the prevalence of leukemia and lymphoma and individual characteristics of patients with leukemia or lymphoma in Hamedan- North western Iran. We used standard questionnaire to gather the data from the patients with leukemia or lymphoma who were referred to hospital or care centers in Hamedan. The data were analyzed using ANOVA. Our results showed that AML was higher in patients than other types of leukemia. Mean age of patients with leukemia was 45.5 years old. Mean age of patients with lymphoma was 41 years old and male to female ratio was 2. Our results indicated that leukemia and lymphoma in Hamedan is of significant importance and there is a considerable need to investigate the underlying causes related to leukemia and lymphoma prevalence in Hamedan .

Keywords— Leukemia, Lymphoma, Hamedan**.**

I. Introduction

LEUKEMIA is a type of cancer of the blood or bone marrow characterized by an abnormal increase of immature white blood cells called "blasts". Leukemia is a broad term covering a spectrum of diseases. In turn, it is part of the even broader group of diseases affecting the blood, bone marrow, and lymphoid system, which are all known as hematological neoplasms [1]. There are four common types of leukemia including ALL , AML, CLL and CML. Acute lymphoblastic leukemia (ALL) is the most common type of leukemia in young children. This disease also affects adults, especially those age 65 and older [2].

Acute myeloid leukemia (AML) is a cancer of the myeloid line of blood cells, characterized by the rapid growth of abnormal white blood cells that accumulate in the bone marrow and interfere with the production of normal blood cells [3]. AML is the most common acute leukemia affecting adults, and its incidence increases with age. The symptoms of AML are caused by replacement of normal bone marrow with leukemic cells, which causes a drop in red blood cells, platelets, and normal white blood cells. These symptoms include fatigue, shortness of breath, easy bruising and bleeding, and increased risk of infection [4]. Several risk factors and chromosomal abnormalities have been identified, but the specific cause is not clear [5]. As an acute leukemia, AML progresses rapidly and is typically fatal within weeks or months if left untreated. AML has several subtypes; treatment and prognosis varies among subtypes [6]. AML occurs more commonly in adults than in children, and more commonly in men than women [7]. Chronic lymphocytic leukemia (CLL) most often affects adults over the age of 55. It sometimes occurs in younger adults, but it almost never affects children. Two-thirds of affected people are men [8]. Chronic myelogenous leukemia (CML) occurs mainly in adults; a very small number of children also develop this disease [9].

Lymphoma is a type of blood cancer that occurs when B or T lymphocytes, Lymphoma may develop in the lymph nodes, spleen, bone marrow, blood or other organs and eventually they form a tumor. Typically, lymphoma presents as a solid tumor of lymphoid cells [10]. The aim of this study was to determine the prevalence of leukemia and lymphoma and individual characteristics of patients with leukemia or lymphoma in Hamedan- North western Iran.

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II. Material and Methods

A. Subjects

The patients with leukemia or lymphoma who were referred to hospital or care centers in Hamedan.

B. Protocol of Study

We used standard questionnaire to gather the data from the patients with leukemia or lymphoma who were referred to hospital or care centers in Hamedan. The data were analyzed using ANOVA.

III. Results

Table I shows the frequency of four types of leukemia in patients with leukemia in Hamedan - Northwestern Iran

TABLE I
FREQUENCY OF FOUR TYPES OF LEUKEMIA IN PATIENTS WITH LEUKEMIA IN HAMEDAN - NORTHWESTERN IRAN

Index	Leukemia (total)	ALL	CLL	AML	CML
Frequency	61(100%)	12(21%)	18(29%)	19(31%)	11(19%)
Age Range (years old)	12-91	12-91	20-80	15-65	25-80
Average age (years old)	45.5	31.3	54.6	41	55.3
Males	30(49%)	3(23%)	12(66.7%)	10(52.6%)	5(45.5%)
Females	31(51%)	10(77%)	6(33.3%)	9(47.4)%	6(54.5%)

Table II shows the age range and sexuality in patients with lymphoma in Hamedan - Northwestern Iran.

TABLE II
AGE RANGE AND SEXUALITY IN PATIENTS WITH LYMPHOMA IN HAMEDAN - NORTHWESTERN IRAN

Index	Lymphoma
Frequency	15
Age Range (years old)	15-71
Average age (years old)	41
Males	10(66.7%)
Females	5(22.2%)

Our results showed that AML was higher in patients than other types of leukemia. Mean age of patients with leukemia was 45.5 years old. Mean age of patients with lymphoma was 41 years old and male to female ratio was 2.

IV. DISCUSSION

Our findings indicated that AML was higher in patients with leukemia compared to other types of leukemia. In line with this report, there are other studies indicating that AML is more prevalent than other types of leukemia [11]–[13]. On the other hand, mean age of patients with leukemia was 45.5 years old. There are other reports indicating that leukemia occurrence is mostly observed around 40 years old [14]. Age range is most important factor influencing the occurrence of several types of cancers [15]. In our study, mean age of patients with lymphoma was 41 years old and male to female ratio was 2. There are other studies showing that lymphoma is occurred mainly around 40 years old [16], [17]. In line with our findings, the reports also indicate that lymphoma is sex related diseases with high frequency in males [18]. Gender difference is also observed in occurrence of several types of cancers [19], [20].

V. CONCLUSION

Our findings indicate that AML was higher in patients than other types of leukemia. Mean age of patients with leukemia was 45.5 years old. Mean age of patients with lymphoma was 41 years old and male to female ratio was 2.

ACKNOWLEDGMENT

This research has been done with the support of Islamic Azad University-Hamedan Branch. We appreciate all who helped us to exert the present study.

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