

The Distribution of Hematological Malignancies in Adult Syrian Refugees Admitted to a Tertiary Center

Funda Pepedil-Tanrikulu^{1*}, Didar Yanardag-Acik¹ and Mikail Ozdemir²

¹University of Health Sciences, Adana City Training and Research Hospital, Adult Hematology Clinic, Adana, Turkey

²Osmaniye Community Health Center, Osmaniye, Turkey

***Corresponding Author:** Funda Pepedil-Tanrikulu, University of Health Sciences, Adana City Training and Research Hospital, Adult Hematology Clinic, Adana, Turkey.

Received: November 19, 2020; **Published:** January 29, 2020

Keywords: Hematological Malignancy; Syrian; Refugee; Epidemiology

Turkey is hosting many Syrian refugees since the onset of civil war in 2011. There are more than 3 million registered Syrians in Turkey by 2019. Adana is one of the provinces with a high Syrian population. According to the statistics, more than 200 000 refugees live in Adana and this represents about 10% of the whole inhabitants [1]. Our hospital is a comprehensive tertiary center and it is one of the largest public hospitals of the region. During our daily clinical practice we encounter many refugees and this study is designed to determine the distribution of hematological malignancies comparatively in Syrian and Turkish cases. As far as we know, there are a few studies published from Turkey on the subject including pediatric patients [2,3]. However, for adult patients in Turkey, the issue has not been demonstrated in the literature yet.

Hematological malignancies are divided into 3 main groups: leukemia, lymphoma and plasma cell neoplasms [4]. We retrospectively reviewed adult patients over 18 years-old admitted in between January to December 2019. The cases registered as having one of the above diagnosis were included and the data about their age, gender, race, and diagnosis were noted. All of the information was gathered from the electronic database used for patient follow-up in our hospital. Statistical analyses were performed by a member of the research team with formal training in epidemiology and biostatistics using SPSS Statistics version 17 (IBM). Hematological malignancy types in the 2 groups (according to race) were summarized in categories and, for each category, were compared with Fisher's exact test or a chi-square test. P value was 2-sided and statistical significance was defined as $P < .05$.

There were a total of 1058 patients (432 female, 626 male) included in the study. Among them the number of Turkish and Syrian cases were 958 and 100 respectively. Two groups were similar regarding the distribution of gender. Mean age was 57 (41 - 73) in Turkish patients, while it was 44 (24 - 64) in Syrian ones. The distribution of hematological malignancies in both groups is summarized in table 1. According to this, the most common type of hematological cancer encountered in Turkish patients was non-hodgkin lymphoma (NHL) (30.1%) followed by chronic lymphocytic leukemia (CLL) (17.6%) and plasma cell neoplasia (PCN) (17%), while it was hodgkin lymphoma (HL) (20%) followed by acute myeloid leukemia (AML) (19%) in Syrian refugees. There was a statistically significant difference between two groups.

Hematological malignancy	Turkish cases		Syrian cases		p
	n	%	N	%	
Leukemia					< 0,001
Acute myeloid leukemia	97	10.1	19	19.0	
Acute lymphoblastic leukemia	18	1.9	9	9.0	
Chronic lymphocytic leukemia	169	17.6	11	11.0	
Chronic myeloid leukemia	105	11.0	10	10.0	
Others	10	1.0	4	4.0	
Lymphoma					
Non-hodgkin lymphoma	288	30.1	18	18.0	
Hodgkin lymphoma	108	11.3	20	20.0	
Plasma cell neoplasia	163	17.0	9	9.0	
Total	958	100	100	100	

Table 1: The distribution of hematological malignancies in Turkish and Syrian cases.

In the literature, CLL is reported as the most common type of adult leukemia in the Western countries, but it is rare in Asian countries [5,6]. In our study, CLL is the most common type of leukemia in Turkish cases, whereas AML is the most common in Syrians followed by CLL.

Considering lymphoma subgroups in the literature, NHL is the most common type of hematological cancer for adults in Western countries, whereas HL is encountered in a lower incidence. The incidence of HL in Asia is even much lower [5,7]. In our study, the distribution in Turkish patients looks alike the previous reports, while the prevalence of HL is high in Syrian patients contrary to the literature.

According to previous studies, PCN is expected to constitute about 17% of hematological malignancies [8]. This ratio is similar to our results in Turkish group, but the ratio is about half the expected in Syrians.

In conclusion, we found that the disease frequencies seen in Turkish cases are similar to the previously reported literature on the subject. However, the distribution of Syrian cases is different than expected. Of course, due to social obstacles such as problems in the referral chain, language problems, refugee patient applications may not cover all possible cases. In addition, our study is the experience of a single center and it is difficult to make precise judgments with these findings. However, our results suggest that there may be ethnic differences in the distribution of hematological malignancies.

Hematological cancers are very heterogeneous in terms of management: some are followed only with a no-treatment protocol, while others may require treatment in long-term inpatient units. Studies that reveal the distribution of diseases like ours gain importance in the planning of health policies, especially in cities whose population balances have changed heavily due to migration and our study indicates that there is a need for large-scale multi-center studies involving more cases on the issue.

Bibliography

1. Assi R., *et al.* "Health needs and access to health care: the case of Syrian refugees in Turkey". *Public Health* 172 (2019): 146-152.
2. Kebudi R., *et al.* "Refugee children with cancer in Turkey". *The Lancet Oncology* 17.7 (2016): 865-867.
3. Yagci-Kupeli B and Ozkan A. "Syrian and Turkish children with cancer: a comparison on survival and associated factors". *Pediatric Hematology and Oncology* 24 (2020): 1-10.
4. Jurlander J. "Hematological malignancies, leukemias and lymphomas". In: Schwab M. (editions) *Encyclopedia of Cancer* (2011).
5. Rodriguez-Abreu D., *et al.* "Epidemiology of hematological malignancies". *Annals of Oncology* 18.1 (2007): i3-i8.
6. Hallek M. "Chronic lymphocytic leukemia: 2017 update on diagnosis, risk stratification, and treatment". *American Journal of Hematology* 92 (2017): 946-965.
7. Saglam A., *et al.* "Distribution of lymphomas in Turkey: data of 4239 cases from a single institution using the WHO classification". *Turkish Journal of Medical sciences* 48.5 (2018): 1013-1023.
8. Siegel RL., *et al.* "Cancer statistics, 2020". *CA: A Cancer Journal for Clinicians* 70.1 (2020): 7-30.

Volume 5 Issue 2 February 2021

© All rights reserved by Funda Pepedil-Tanrikulu., *et al.*