Research Article

Retrospective Case Series Study on Basic Epidemiological Characteristics of the Cancer Diagnosed Syrian Refugees in South of Turkey

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Abstract

Objectives: 3.5 million Syrian refugees are living in Turkey which is higher than other countries. We aimed to examine the epidemiological characteristics of Syrian refugees diagnosed with cancer and the relationship between living conditions and treatment compliance.

Methods: This study is a retrospective observational study. A total of 233 patients were included the trial from two different oncology centers in Turkey between 2014 and 2019.

Results: Median age was 49 years old (range 6-93). 152 (65.2 %) patients were female. The most common cancer type was breast cancer (n=83, 35.6%). There are 161 (69.1 %) and 72 (30.9 %) patients admitted to our center from refugee camp and their home, respectively. Median follow-up time was 15 (range 3-158) months and 22 (9.4) patients were death. Statistical analysis failed to show significant relation between the staying site (either camp or house) and chemotherapy/radiotherapy compliance rate with a p values of p:0.71 and p:0.17, respectively.

Conclusion: Our results revealed that breast cancer was most common cancer type and majority of patients were advanced stage. Additionally this trial showed that the Syrian refugees could reach oncological treatment options. Also, their compliance to treatment was good regardless of where they lived.

Keywords: Cancer, epidemiological study, Syrian Refugees, Turkey

An estimated 11 million civilians have fled their homes during Syrian refugee crisis.[1] The number of Syrians refugees are 3.5 million in Turkey. Sanliurfa and Gaziantep as a neighboring cities to Syria are home to over 850.000 Syrian refugees. Women and children represent more than 75% of Turkey's refugee population.[2] There are numerous big refugee camps in this area. Gaziantep Dr. Ersin Arslan Research and Training Hospital and Sanlıurfa Research and Training Hospital are two important reference centers which provide medical care for Syrian refugees in southeast anatolia region in Turkey. According to best of our knowledge, there are not enough published epidemiological study in literature aiming characterize the Syrian refugees.

In our previous study,[3] we showed that no significant relation between the staying site (either camp or house) and chemotherapy/radiotherapy compliance rates for cancer

diagnosed Syrian refugees in 134 cancer patients. With this study, we aim to highlight the patients journey of Syrian refugees in the Turkish health care system with a larger number of patients.

Methods

We designed this hospital based retrospective case series study to evaluate clinicopathological characteristics of the cancer patients from Syrian refugees. We enrolled 233 cancer patients those who were treated at the Gaziantep Dr. Ersin Arslan Research and Training Hospital and Sanlıurfa Research and Training Hospital between the years of 2014 and 2019. Patients' age, gender, diagnosis, diagnosis dates, metastasis location at the time of diagnosis, ECOG PS, where they lived, given treatment protocols, last control dates and death dates were recorded from patient files and hospital automation records.

Statistical Analysis

All results were presented as the rate for categorical values or mean and median for continuous variables. Clinical and statistical significant correlation between continuous variables was calculated by Spearman's rank correlation test, rs (spearman's correlation coefficient) and p value (2-tailed) were noted. Overall Survival (OS) was defined by the time from the date of death and last control minus the first day of the chemotherapy. Survival curves were estimated according to the Kaplan-Meier method, and log-rank tests were used for univariate statistical comparisons. Adjusted Hazard Ratio (HR) and 95% confidence interval (95% CIs) were used for estimation. All statistical data were analyzed using the SPSS version 17.0, and a p value of <0.05 was considered statistically significant.

Results

Study Patients

Patient and tumor characteristics are summarized in Table 1. Median age was 49 years old (range 6-93). Out of the 233 patients, 152 (65.2 %) patients were female. 80 (34.3%) patients were smoking. The most common cancer type was breast cancer (n=83, 35.6%). The second one was Head and Neck cancer (n=23, 9.8%). Majority of patients were diagnosed at stage IV (n=111, 47.6%). Most of the patients were able to adapt chemotherapy seamlessly (n=191, 82%). Significant percent of the patients admitted to our center were staying at refugee camp (n=161, 69.1%) and other patients admitted from their home (n=72, 30.9%). There are 187 (80.3%), 46 (19.7%) patients received cancer diagnosis in Turkey and Syria, respectively. 3 (1.2%) patients had been living in Turkey more than five years and 230 patients (98.8%) had been living in Turkey for less than five years.

Table 1. Patient and tumor characteristics

Characteristics	n (%)
Median age	49 (6-93) years old
Gender	
Men	81 (34.8)
Women	152 (65.2)
Diagnosis	
Breast cancer	83 (35.6)
Head and Neck cancer	23 (9.8)
Gynecologic tumors	20 (8.5)
Brain tumors	20 (8.5)
Colorectal cancers	19 (8.1)
Lung Cancer	17 (7.2)
Hematological tumors	15 (6,4)
Urogenital cancers	13 (5,5)
Soft tissue sarcoma	10 (4.2)
Other GIS tumors	9 (3.8)
Stage of disease	
1	8 (3.4)
2	47 (20.2)
3	67 (28.8)
4	111 (47.6)
Smoking	
Yes	80 (34.3)
No	143 (61.4)
Place of residence	
Refugees Camp	161 (69.1)
Home	72 (30.9)
Place of first diagnosis	
Syria	46 (19.7)
Turkey	187 (80.3)

Treatment and Outcomes

After a median follow-up of 15 (range 3-158) months, 22 (9.4%) patients were death. One and two-year survival rate of the whole group was 94% and 81%, respectively (Fig. 1). Treatment modalities consisted of surgical resection, adjuvant chemotherapy, neoadjuvant chemotherapy and concurrent chemoradiotherapy in 153 (65.7%), 103 (44.2%), 16 (6.9%) and 40 (17.2%) patients, respectively. 152 (65.2) of the patients received radiotherapy and 109 (46.8%) patients received radiotherapy with curative intent. The radiotherapy modalities applied were 3DCRT (n=104 and 44.6%), IMRT (n=47 and 19.7%) and 3DCRT + IMRT (n=1 and 0,4%). There were 12 (5.2 %) patients with grade 3-4 hematological and non-hematological toxicities. Neutropenia was the most common grade 3-4 toxicity (n=8, 3.4 %). Treatment modalities and related side effects are shown in table 2.

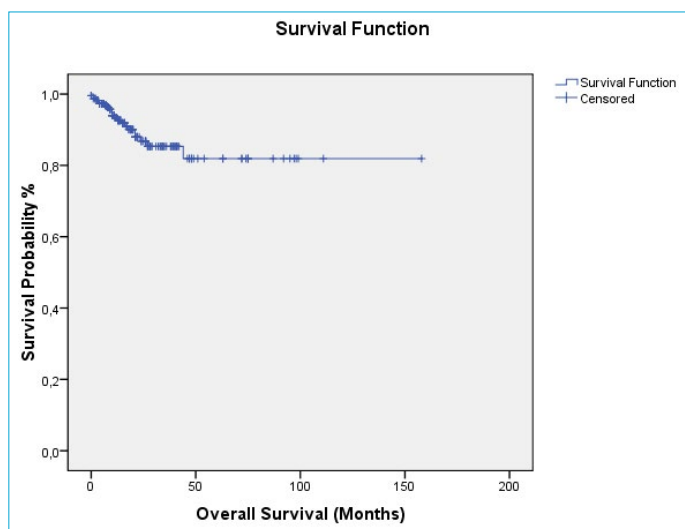The chemotherapy compliance rate for the patients staying in the camp or home were 68,5% (n=131) and 31,5%

Figure 1. Kaplan–Meier estimates of overall survival (OS).

(n=60), respectively. The radiotherapy compliance rate for the patients staying in the camp or home were 68.4% (n=91) and 31.6% (n=42), respectively Statistical analysis failed to show significant relation between the living site (either camp or house) and compliance rates (chemother-

Table 2. Treatment modalities and toxicities

Treatment Options	n (%)
Surgery	153 (65.7)
Adjuvant Chemotherapy	103 (44.2)
Neodjuvant Chemotherapy	16 (6.9)
Concurrent Chemotherapy	40 (17.2)
Radiotherapy	152 (65.2)
Curative	109 (46.8)
Palliative	43 (18.5)
Radiotherapy Type	
3DCRT	104 (44.6)
3DCRT+IMRT	1 (0.4)
IMRT	47 (19.7)
Chemotherapy compatibility	
Yes	191 (82)
No	42 (18)
Radiotherapy compatibility	
Yes	133 (57.1)
No	19 (8.2)
Grade 3-4 toxicity	
Yes	12 (5.2)
No	221 (94.8)
Toxicities	
Neutropenia	8 (3.4)
Febrile neutropenia	2 (0.9)
Thrombocytopenia	1 (0.4)
Fatigue	1 (0.4)
Final Status	
Died	22 (9.4)
Alive	211 (90.6)

apy and radiotherapy, respectively) of the patients (p=0.71 and p=0.17) (Table 3).

Discussion

Protracted conflicts in the Middle East have led to successive waves of refugees crossing borders. These migrations also affect the health care systems of countries.[4] Over 3.5 million Syrian refugees had been living in Turkey either in refugee camps or in Turkish population. There is a growing awareness of the burden of chronıc diseases among refugees in receiving countries.[5-7] Especially, cancer poses significant financial and ethical difficulties for countries due to its cost and multidisciplinary care. These peoples had to face adaptation to different language with culture and economic difficulties especially when they need health care for the chronic disease like cancer.[8-10] Oncological treatments of the Syrian refugee population pose a significant financial burden for host countries. The all health expenses of refugees are covered by the health system ın Turkey.

The epidemiological characteristics of the refugees diagnosed with cancer in our country are recorded by the national cancer registry systems. In this study, we evaluated the epidemiological characteristics of Syrian cancer patients in our centers in South of Turkey. We showed that the most common cancer type was breast cancer (n=83, 35.6%) and majority of patients were diagnosed at stage IV (n=111, 47.6%). Statistical analysis failed to show significant relation between the living site (either camp or house) and compliance rates. Similarly, In 2017, in our previous study in this topic, we had analysed that significant percent of cancer patients were female (n=102, 76.1%) and the most common cancer type was breast cancer (n=57, 42.5%). Majority of patients were diagnosed at stage IV (n=60, 44.8%). Significant percent of the patients admitted to our center were from refugee camp (n=91, 67.9%) and less commonly from home (n=43, 32.1%).[3] In literature, Paul B Spiegel at al also showed that breast cancer was the most common cancer diagnosis, comprising 95 (33%) of 289 applications In Jordan as in our study.[11]

Table 3. Effect of living site on treatment compliance

	Staying Camp (n, patients) (%)	Staying Home (n, patients) (%)	p
Chemotherapy adaptation			0.71
Yes (191)	131 (68.5)	60 (31.5)	
No (42)	30 (71.4)	12 (28.6)	
Radiotherapy adaptation			0.17
Yes (133)	91(68.4)	42 (31.6)	
No (19)	10 (52.6)	9 (47.4)	

There was no other study in the literature other than our study examining the relationship between where refugees lived and their treatment compliance. Paul B Spiegel at al. showed that majority of Syrian refugees, more than 98%, live outside of camp settings in Jordan and Lebanon in their study[12] but their treatment compliance was not examined. In both our previous and current studies, when we compare the status for the reaching healthcare system, the statistical analysis failed to show difference in the compliance rate of patients whom admitted form refugee camp or home.

We acknowledged that current study has a number of crucial limitations that need to be considered. Especially, as a retrospective study, it is subject to all design related the inherited biases. Nonetheless, the current study has several strengths. The data were obtained from the two reference center which had border with Syria and fairly higher refugee population compared to other sites in Turkey.

Conclusion

In conclusion, our data showed the high burden of breast cancer among the Syrian refugee population in South of Turkey. Treatment programmes must be provided to both refugees and host nationals in an equitable way. Our refugees patients can reach to whole health system facilities without no difference from Turkish population.

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