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SPECIAL ARTICLE

A study on basic demographic and disease characteristics of cancer-diagnosed Syrian refugees treated in the border city of Turkey, Sanliurfa; a hospital-based retrospective case series study

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Summary

Purpose: *Turkey hosts around 3 million Syrian refugees which is more than any other country in the world. Along with some other adaptation issues like cultural, language, and economic difficulties, significant problems in managing medical problems, chronic diseases like cancer in particular, have to be fixed. However, there are few studies which explore main patient and clinicopathological characteristics in Syrian refugees with cancer. The purpose of this study was to highlight the aforementioned characteristics along with management issues after cancer diagnosis of these patients.*

Methods: *This study was designed as a hospital-based retrospective observational case-series study of 134 Syrian refugees cancer patients between 2015 and 2017.*

Results: *The patient median age was 47.5 years (range 18-80). Out of the 134, 102 (76.1%) were female. The most common cancer types were breast (n=57, 42.5%) and gynecological cancers (n=14, 10.4%). The majority of patients were diagnosed at advanced stage (n=60, 44.8%). There were 91 (67.9%) and 43 (32.1%) patients admitted to our center from refugee camps and staying in a house, respectively. The median follow-up was 14 months (range 1-111) and 11 (8.2%) patients died. One and two-year survival rate of the whole group were 93% and 86%, respectively. There were 12 (9%) patients with grade 3-4 hematological and non-hematological toxicities. Neutropenia was the most common grade 3-4 toxicity (n=8, 6%). The patients staying in refugee camp (n=91) or in a house (n=43) finished all planned cycles of chemotherapy with a rate of 71% (n=65) and 79% (n=34), respectively. Statistical analysis failed to show significant relationship between the staying site (either camp or house), chemotherapy compliance rate, grade 3-4 toxicities with p=0.347 and p=0.09, respectively.*

Conclusion: *Our results revealed that breast cancer and gynecological cancers were the most common cancer types which are good candidates for cancer screening. Unfortunately, the majority of patients had cancer diagnosed at advanced stage. However, after diagnosis they could reach all health facilities including surgical operation, radiotherapy, and systemic chemotherapy similar to Turkish cancer patients. Therefore, our results suggested that major problem for the Syrian refugees adapting them into national screening program which may resulted that cancer diagnosis at earlier stage with high cure rate.*

Key words: *cancer, observational study, Sanliurfa, Syrian refugees*

Introduction

An estimated 11 million citizens have fled their homes during Syrian refugee crisis [1]. The number of Syrians refugees in Turkey is 3.0 million. Sanliurfa as a neighboring city to Syria is home

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to over 500,000 Syrian refugees. There are five big refugee camps with 350,000 Syrian civilian population. The Sanlıurfa Research and Training Hospital is reference center which provides medical care for diagnosis and treatments of severe chronic diseases for Syrian refugees. With regard to cancer, a way to good medical care comes from the deeper knowledge about this specific group of patients. However, to the best of our knowledge, there is no published observational study in literature aiming to characterize this target population and their specific needs. Therefore, we planned this study to highlight the patients journey of Syrian refugees in the Turkish health care system.

Methods

We designed this hospital-based retrospective case series study to evaluate the clinicopathological characteristics of cancer patients among Syrian refugees. We enrolled 134 cancer patients who were treated at the Sanlıurfa Research and Training Hospital between the 2015 and 2017.

Statistics

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

Results

Patient and disease characteristics

Patient and tumor characteristics are summarized in Table 1. Median age was 47.5 years (range 18-80). Out of the 134 patients, 102 (76.1%) were female and 44 (32.8%) were smokers. The most common cancer type was breast cancer (n=57, 42.5%), followed by gynecological cancers (n=14, 10.4%). The majority of patients were diagnosed at stage IV (n=60, 44.8%). Most of the patients were able to receive chemotherapy easily (n=99, 73.9%). A significant percent of the patients admitted to our center were staying at refugee camp (n=91, 67.9%) and other patients were admitted from their houses (n=43, 32.1%). Of the patients, 101 (75.4%), 32 (23.9%) and 1 (0.7%) were diagnosed with cancer in Turkey, Syria, and USA, respectively. Three (2.2%) patients had been living in Turkey more than 5 years and 131 (97.8%) for less than 5 years.

Table 1. Patient and tumor characteristics

Characteristics	*n (%)*
Median age, years (range)	47.5 (18-80)
Gender	
Men	32 (23.9)
Women	102 (76.1)
Diagnosis	
Breast cancer	57 (42.5)
Gynecologic tumors	14 (10.4)
Colon cancer	13 (9.7)
Lung cancer	10 (7.5)
Urogenital cancers	10 (7.5)
Head and Neck cancer	8 (6)
Soft tissue sarcoma	7 (5.2)
Brain tumors	6 (4.5)
Other G.I. tumors	7 (5.2)
Stage of disease	
1	6 (4.5)
2	25 (18.7)
3	43 (32.1)
4	60 (44.8)
Smoking	
Yes	44 (32.8)
No	80 (59.7)
Chemotherapy compliance	
Yes	99 (73.9)
No	35 (26.1)
Grade 3-4 toxicity	
Yes	12 (9)
No	96 (71.6)
Place of residence	
Refugees camp	91 (67.9)
House	43 (32.1)

GI: gastrointestinal

Treatment and outcomes

After a median follow-up of 14 months (range 1-111), 11 (8.2%) patients died. One and two-year survival rate of the whole group was 93% and 86%, respectively (Figure 1). Treatment modalities consisted of neoadjuvant chemotherapy, surgical resection, and radiotherapy in 12 (9%), 94 (70.1%), and 53 (39.6%) patients, respectively. Forty-one (30.6) of the patients received radiotherapy with curative intent. Twelve (9%) patients developed grade 3-4 hematological toxicity and the most common side effect was neutropenia (n: 8, 6%).

Treatment modalities and related side effects are shown in Table 2. The compliance rate for the patients staying in the camp or house were 71% (n=65) and 79% (n=34), respectively. Statistical analysis failed to show significant relationship between the living site (camp or house) and compliance rate of the patients (p=0.347). Additionally, there was no significant relationship between living site and major toxicities (grade 3-4; p=0.09) (Table 3).

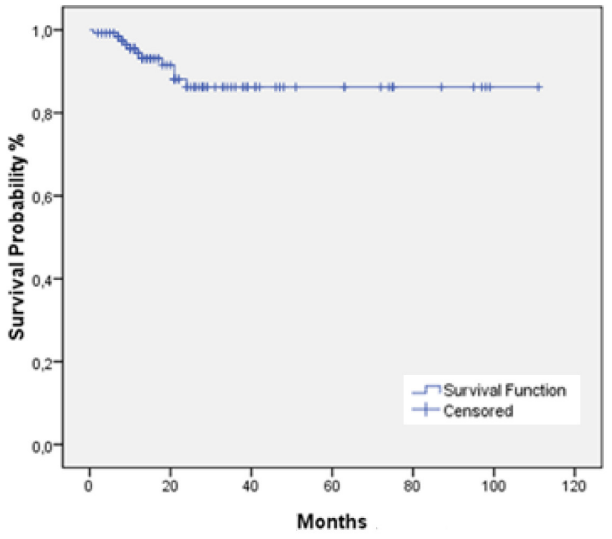

Figure 1. Overall patient survival.

Table 2. Treatment modalities, toxicity and outcome

Treatment options	*n (%)*
Neoadjuvant chemotherapy	12 (9)
Surgery	94 (70.1)
Radiotherapy	53 (39.6)
Curative	41 (30.6)
Palliative	12 (9)
Toxicities	
Neutropenia	8 (6)
Febrile neutropenia	2 (1.5)
Thrombocytopenia	1 (0.7)
Fatigue	1 (0.7)
Final status	
Deceased	11 (8.2)
Alive	123 (91.8)

Discussion

The conflict in Syria created significant refugee crisis which caused displacement of 4.9 million persons in Syria and across the region [2]. Over 3 million Syrian refugees were living in Turkey either in refugee camps or with Turkish population. These individuals had to face adaptation to different language and culture along with economic difficulties, especially when they needed health care for chronic diseases like cancer [3-5]. We believe that highlighting these problems, in cancer patients in particular, will help us develop solutions in the Turkish health system. In this study, we found that a significant percent of cancer patients were female (n=102, 76.1%). As expected, the most common cancer type was breast cancer (n=57, 42.5%). But not as expected, the second one was gynecological cancers (n=14, 10.4%). The majority of patients were diagnosed at stage IV (n=60, 44.8%). A significant percent age of patients admitted to our center were from refugee camp (n=91, 67.9%) and less commonly from home (n=43, 32.1%). Most of the patients (n=101, 75.4%) were diagnosed in Turkey and they had been living in Turkey for less than 5 years (n=131 patients, 97.8%).

Women and children represented more than 75% of Turkey's refugee population [6]. We believe that this can truly explain the high incidence of cancer in females (breast and gynecological cancer) among the Syrian refugee population. Although, breast cancer and gynecological cancers (cervix and uterine cancer) are good candidates for early diagnosis and treatment with curative intent, a significant percentage of the cases were diagnosed at advanced stages and treated with palliative chemotherapy. When we compared the status of reaching the healthcare system, the statistical analysis failed to show differences between patients who were admitted from refugee camp or house. Therefore, we concluded that there may be significant challenges of cancer patients about early diagnosis. One reason may be the difficulty to reach the free screening program of the

Table 3. Effect of living site on treatment compliance and side effects

	Staying Camp *Patients, n*	*Staying House* *Patients, n*	*p value*
Chemotherapy adaptation			0.34
Yes	65	34	
No	26	9	
Grade 3-4 toxicity			0.09
Yes	10	2	
No	56	40	

Turkish Ministry of Health. On the other hand, when they have proven cancer diagnosis, they fully reach all the health system facilities and get treated with chemotherapy, radiotherapy and surgical operations.

We acknowledge that the current study has a number of crucial limitations that need to be considered. First, as a retrospective study, it is subjected to all design-related biases. Second, the limited number of patients from a single center could not be generalized to the entire refugee population in Turkey. Nonetheless, the current study has several strengths. The data were obtained from a single reference center which has common borders with Syria and fairly higher refugee population compared to other sites in Turkey. In addition, there was convincing follow-up period of 14.5 months (median) for the refugee population. Finally, to the best of our knowledge, there is no similar study in the literature.

In conclusion, our data showed that Syrian refugee cancer patients consisted mostly of women and related cancers like breast and gynecological cancers. They have difficulty to reach a screening program and early diagnosis but can reach to whole health system facilities with no difference from Turkish population when they had histopathological diagnosis of cancer.

Conflict of interests

The authors declare no conflict of interests.

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