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Original Article

Retrospective analysis of electronic medical records of Syrian immigrants admitted to a training and research hospital in Turkey

Türkiye'de bir eğitim araştırma hastanesine başvuran Suriyeli göçmenlerin elektronik tıbbi kayıtlarının retrospektif analizi

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ABSTRACT

Aim: The Syrian citizens mass-migrated mostly to Turkey along with Lebanon, Jordan, and Iraq because of internal conflicts. Having access to health care is of great importance in such crisis situations. The aim of this study is to reveal the characteristics and the frequency of admission to health services of Syrian refugee patients, who have admitted to a tertiary hospital in Ankara.

Material and Methods: The patients of Syrian nationality who have admitted to Ankara Numune Training and Research Hospital between 03.2014 - 02.2017 were included irrespective of their age in this descriptive retrospective study. Medical records were reviewed for available information such as the registered province, age, gender, number of patients, outpatient clinic, number of hospital admissions and emergency applications, the frequency of the diagnosis international classification of diseases (ICD) code, surgery status, surgery type, and the frequency of imaging requests.

Results: The total number of Syrian citizens was 2,205. The top three ICD diagnosis codes are "Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)", "Factors influencing health status and contact with health services (Z00-Z99)" and "Diseases of the musculoskeletal system and connective tissue (M00-M99)". The most frequented clinic was the emergency medicine.

Conclusion: Most of the applications are the problems that could be diagnosed and treated in primary care. It is thought to be more effective that Syrian patients could be followed closely by family physicians, in term of patients and cost.

Keywords: Refugee; healthcare; asylum seeker

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Öz

Amaç: Suriyeliler iç çatışmalar sebebiyle, başta Türkiye olmak üzere; Lübnan, Ürdün ve Irak'a yoğun ve toplu göçler gerçekleştirmişlerdir. Sağlık hizmetlerine erişebilirlik kriz durumlarında büyük bir öneme sahiptir. Bu çalışmada amacımız, Ankara ilinde bulunan üçüncü basamak bir hastaneye başvuran Suriyeli mülteci hastaların özelliklerini ve sağlık hizmetlerine erişim sıklıklarını ortaya koymaktır.

Gereç ve Yöntemler: Retrospektif tanımlayıcı araştırmamıza, Ankara Numune Eğitim ve Araştırma Hastanesi'ne 03.2014-02.2017 tarihleri arasında başvuran Suriye uyruklu hastalar, yaş sınırı aranmaksızın dahil edilmiştir. Hastaların; kayıtlı oldukları iller, yaş, cinsiyet, hasta sayısı, poliklinik, yatış ve acil başvuru sayısı, ICD (Hastalıkların Uluslararası Sınıflaması) tanı kodu sıklığı, ameliyat olma durumu, ameliyat grubu ve görüntüleme istenme oranları incelenmiştir.

Bulgular: Başvuran toplam Suriyeli sayısı 2205'tir. İlk 3 ICD tanı kodu grubu "Semptomlar ve anormal klinik ve laboratuvar bulguları (R00-R99)", Sağlık durumu ve sağlık hizmetlerinden yararlanmayı etkileyen faktörler (Z00-Z99)" ve "Kas-iskelet ve bağ dokusu hastalıkları (M00-M99)"dır. En sık başvurulan klinik Acil Tıp'tır.

Sonuçlar: Başvuruların çoğu birinci basamakta tanı ve tedavi edilebilecek problemlerdir. Suriyeli hastaların hasta ve maliyet açısından aile hekimleri tarafından yakından takip edilebilmelerinin daha etkili olacağı düşünülmektedir.

Anahtar Kelimeler: Mülteci; sağlık hizmeti; sığınmacı

Introduction

The recent internal conflicts that begun in 2011 and worsened ever since in Syria, a bordering neighbor of Turkey in the south, have forced Syrians to internal and external migrations. The Syrian citizens mass-migrated mostly to Turkey along with Lebanon, Jordan, and Iraq [1].

In addition to the basic needs, such as shelter and healthcare in the temporary accommodation centers established in the border regions of Turkey, various psychological and physical needs of the victims of the Syrian crisis are also supplied [2]. However, most of those Syrians prefer to live outside these accommodation centers, among those are the Syrians who entered the country illegally, who have good financial condition, who wish to live with their relatives, or who have some other reasons [1]. The terms "refugee" or "asylum seeker" are not appropriate legal terms to define the Syrians who are present in Turkey due to the internal turmoil in their country. The legal status of the Syrian nationals in Turkey is "temporary protection". However, here we chose to use the term "refugee" in accordance with the international literature.

The refugees who had to survive in unsuitable conditions carry the risk of developing various health problems; especially trauma, malnutrition, anemia, infectious diseases, unwanted and risky pregnancies, psychological disturbances, and of aggravation of chronic illnesses already present [3]. Having access to health care is of great importance in such crisis situations.

According to the Temporary Protection Regulation, there is no copayment for basic and emergency medical services for the Syrian refugees. Secondary and tertiary healthcare services are also covered under the Health Practice Statement provided that they have a referral from a public hospital.

The aim of this study is to reveal the characteristics and the frequency of admission to health services of Syrian refugee patients, who have admitted to a tertiary hospital in Ankara, a city quite far away from the border and yet has a substantial Syrian refugee population. It is thought that this study, defining the current situation, will contribute to the further planning of project areas and priorities.

Material and Methods

The patients of Syrian nationality who have admitted to Ankara Numune Training and Research Hospital (ANTRH) between 10.03.2014 - 15.02.2017 were included irrespective of their age in this descriptive retrospective study.

Medical records were reviewed for available information such as the registered province, age, gender, number of patients, outpatient clinic, number of hospital admissions and emergency applications, the frequency of the ICD (Diagnosis International Classification of Diseases) diagnostic code, surgery status, surgery type, and the frequency of imaging requests. These data were obtained from the hospital's information system. Duplicate records were distinguished using the patients' temporary identity numbers.

The ICD diagnostic code version 10 was used in our study. The ICD diagnostic code are; Infectious and parasitic diseases (A00-B99); Malignant neoplasms (C00-D48); Diseases of blood, blood-forming organs, immune mechanism (D50-D89); Endocrine, nutritional, and metabolic disease (E00-E90);

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Mental and behavioral disorders (F00-F99); Diseases of the nervous system (G00-G99); Diseases of the eye and adnexa (H00-H59); Diseases of the ear and mastoid process (H60-H95); Diseases of the circulatory system (I00-I99); Diseases of the respiratory system (J00-J99); Diseases of the digestive system (K00-K93); Diseases of skin and subcutaneous tissue (L00-L99); Diseases of the musculoskeletal system and connective tissue (M00-M99); Diseases of the genitourinary system (N00-N99); Pregnancy, childbirth, and the puerperium (O00-O99); Certain conditions originating in the perinatal period (P00-P96); Congenital malformations, deformations, and chromosomal abnormalities (Q00-Q99); Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99); Injury, poisoning, and certain other consequences of external causes (S00-T98); External causes of morbidity and mortality (V01-Y98); Factors influencing health status and contact with health services (Z00-Z99).

The institutional review board permissions for the study were obtained from the Ethics committee of the Ankara Numune Training and Research Hospital on 29.03.2017 with number E-17-1326.

Statistical analyses were performed with SPSS for Windows Version 18. The descriptive statistics were given in terms of frequency (n), percentage (%), mean, and lower (min) and upper (max) limits. Shapiro-Wilk test was used to determine whether the continuous variables were normally distributed.

Results

The total number of Syrian citizens who have admitted to the ANTRH between the above-mentioned dates was 2,205; the number of applications was 7,942. Of these patients, 962 (43.6%) were female and 1,243 (56.4%) were male. The mean age of the patients was 29.9 ±0.37 years (range: 0-116). Of the patients younger than 18 years, 194 (41.1%) were female and 277 (58.8%) were male. Of those 18 years old and older, 768 (44.3%) were female and 966 (55.7%) were male (Figure 1). Of these patients, 1,910 (86.6%) were registered in the province of Ankara.

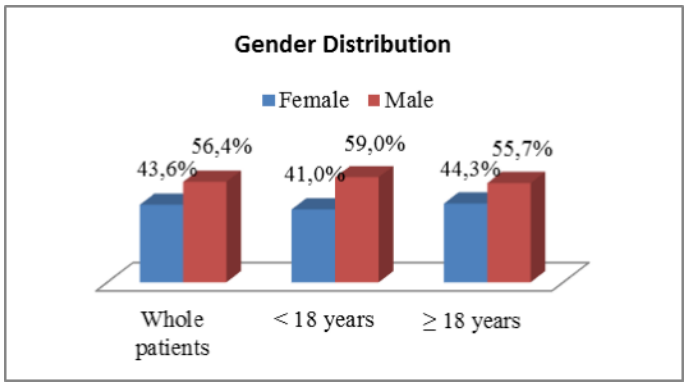

Figure 1. The gender distribution of the patients.

The average number of applications per patient was 3.6 (range: 1-84). Of the applications, 5,727 (72.1%) were for outpatient treatment, 1,376 (17.3%) were for emergency treatment, and 839 (10.6%) were hospitalized. The average number of applications per patient was 3.4 for outpatients, 1.6 for emergency patients, and 2.0 for inpatients. The average number of applications per patient for citizens of the Republic of Turkey (T.C.) in the same period was 2.2; this number was 2.2 for outpatients, 2.2 for emergency patients, and 2.4 for inpatients.

The most frequently applied medical specialties were Emergency Medicine (15.17%), Orthopedics and Traumatology (9.22%), Ophthalmology (8.55%), Obstetrics and Gynecology (6.77%), and Plastic, Reconstructive and Aesthetic Surgery (5.84%). The most frequent hospitalizations were in Plastic, Reconstructive and Aesthetic Surgery (14.89%), Ophthalmology (14.51%), Orthopedics and Traumatology (13.47%), General Surgery (12.80%), and Intensive Care (5.97%) (Table 1).

Table 1. The most common ICD diagnosis codes for the most frequent hospitalizations

Hospitalized service and ICD Diagnosis	Percentage
1. Plastic, Reconstructive and Aesthetic Surgery	
1.1. (Z00) Encounter for general examination without complaint, suspected or reported diagnosis - (R68) Other general symptoms and signs	14.6%
1.2. (T95) Sequelae of burns, corrosions and frostbite	5.9%
1.3. (S61) Open wound of wrist and hand	5.2%
2. Ophthalmology	
2.1. (Z00) Encounter for general examination without complaint, suspected or reported diagnosis - (R68) Other general symptoms and signs	30.0%
2.2. (H35) Other retinal disorders	10.0%
2.3. (H26) Other cataract	9.5%
3. Orthopedics and Traumatology	
3.1. (Z00) Encounter for general examination without complaint, suspected or reported diagnosis - (R68) Other general symptoms and signs	21.4%
3.2. (M25) Other joint disorders, not elsewhere classified	13.6%
3.3. (K21) Gastro-oesophageal reflux disease	10.7%
4. General Surgery	
4.1. (R10) Abdominal and pelvic pain	13.6%
4.2. (K80) Cholelithiasis	7.9%
4.3. (Z00) Encounter for general examination without complaint, suspected or reported diagnosis - (R68) Other general symptoms and signs	7.9%
5. Intensive Care	
5.1. (Z00) Encounter for general examination without complaint, suspected or reported diagnosis- (R68) Other general symptoms and signs	15.8%
5.2. (R07) Pain in throat and chest	5.6%
5.3. (I25) Chronic ischaemic heart disease	5.1%

A total of 570 Syrian nationals had undergone surgery in the hospital and the most frequent operations were group C major operations (Table 2).

Table 2. The surgery groups and numbers

Surgery groups	Number of patients' n (%)	Number of applications n (%)
A	36 (6.3%)	36 (5.6%)
B	116 (20.3%)	131 (20.5%)
C	144 (25.3%)	171 (26.8%)
D	134 (23.5%)	148 (23.2%)
E	140 (24.6%)	149 (23.3%)
Total	570	638

A: Specific operations and procedures, B: Special operations and procedures, C: Major operations and procedures, D: Mid-operations and procedures, E: Minor operations and procedures.

The first 5 most common ICD diagnostic codes when looking at the distribution of applications grouped by ICD diagnostic code; R00-R99, Z00-Z99, M00-M99, J00-J99 and S00-T98 (Figure 2).

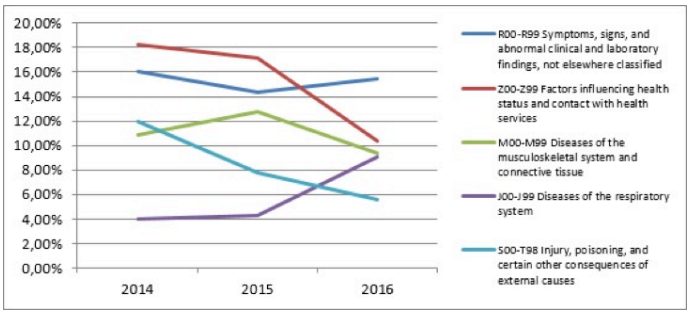

Figure 2. The distribution of the top five ICD diagnosis codes over the years

A total of 4 patients received "B55.Leishmaniasis" diagnosis in 3 years. No patient was diagnosed with Tuberculosis.

A total of 83,966 diagnostic test and 5,936 medical imaging orders were made for Syrian nationals. The numbers (and frequencies) of ordered imaging modalities were as follows: 3,373 (56.8%) for X-ray radiography, 1,050 (17.6%) for ultrasonography, 819 (13.7%) for computerized tomography, 375 (6.3%) for magnetic resonance imaging, and 319 (5.3%) for Doppler ultrasonography.

Discussion

The number of Syrian refugees in Turkey continuously increases. This also means an increasing burden on the healthcare system [4]. Understanding the behavior of Syrian refugees regarding the demand for the healthcare will guide the related government policies.

According to the data obtained from the Directorate General of Migration Management, the number of Syrian nationals registered in Ankara within the scope of temporary protection is 87,794. This corresponds to 1.6% of Ankara's population. On average, 2.5% of Syrians nationals living in Ankara have presented to the ANTRH at least once in this three-year period. The number of Syrians nationals registered in Turkey within the scope of temporary protection is 3,222,000, of which 1,496,121 (46.4%) are female and 1,725,879 (53.6%) are male. Of the Syrian patients presented to the ANTRH, 56.4% were male, which is consistent with the higher proportion of male Syrian refugees in Turkey. Similarly, the proportion of male Syrian refugees in hospital applications was higher in a previous study by Tahirbegolli et al. (64.1%) [5]. However, percentages of male patients were 44.2% in the study of Aygün et al. and 44.8% in the study of Gülaçtı et al [6,7]. There are 1,500,408 registered Syrian refugees under the age of 18, of which 716,299 (47.7%) are female and 784,109 (52.3%) are male. Of the Syrian patients under 18-year-old admitted to the ANTRH, 59% were male. There are no pediatric inpatient clinics in the ANTRH; only outpatient services are provided for children. In their study of Syrian patients under the age of 18 applying to a children's hospital in Ankara and its emergency room, Oğuz et al. found that 56.2% of the patients were male [8]. In the study of Aygün et al., all of the applications are for different people [6]. In our study, a patient presented to the ANTRH for 3.6 times on average. The average number of applications per patient for Turkish citizens in ANTRH was 2.2 in the same period. The outpatient applications were more common for Syrian patients, while emergency visits were more common for Turkish citizens. This may be because the Syrian citizens might have visited the affiliated district clinics in their neighborhoods. In our study, applications to hospital services were categorized as outpatient, inpatient, and emergency care; the applications to affiliated district clinics and central clinics were not examined separately. The future studies may be expanded to include these categories.

Emergency medicine was the medical specialty that was most frequently applied to. The top five most frequent diagnoses by the ICD diagnosis code were R00-R99 (symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified), Z00-Z99 (factors influencing health status and contact with health services), M00-M99 (diseases of the musculoskeletal system and connective tissue), J00-J99 (diseases of the respiratory system), and S00-T98 (injury, poisoning, and certain other consequences of external causes). Emergency medicine was also the most utilized medical specialty in the study by Tahirbegolli et al.; the most frequent ICD diagnosis code was J00-J99 [5]. Other studies

have not categorized the diagnoses by the ICD code [6-10]. Infectious diseases were the most frequent diagnosis in the studies by Aygün et al. and by Oğuz et al.; upper respiratory tract infections in the studies by Gülaçtı et al. and Yurtseven et al [6-9]. In a health screening study done by Mockenhaupt et al. in Berlin, the most common diseases in refugees were intestinal parasites, eosinophilia, abnormal urinalysis, anemia, and schistosomiasis in any location [10]. Although these studies were conducted in different cities and countries in different years, the most common diagnoses are almost always infections. It is not surprising that infectious diseases are the most common diagnosis, given the current living conditions for the Syrian refugees.

When the variation of the diagnosis frequencies over the years was considered, respiratory system diseases (J00-J99) tend to increase while injuries, poisoning, and other conditions related to external causes (S00-T98) tend to decrease in our study. The refugees might have focused on the emergencies for visiting the hospitals at the initial periods of immigration but visited the hospitals more for non-communicable diseases as they settle down and have more information about insurance services.

In a study conducted at the surgical units in Kilis Public Hospital, Şimşek et al. found that the most frequent reasons for surgery were firearm injuries (83%) and explosive and shrapnel injuries (15%) [11]. In our study, the reasons for surgery for the operated patients were not explored; however, the most frequent hospitalizations were in surgical wards and the most frequent operations were group C major operations.

It was reported in the study by Doğru et al. in Hatay province bordering Syria that tuberculosis was frequently observed among the Syrian refugees and its overall frequency in the province has increased after the internal conflict has started in Syria [12]. In our study, no patient was diagnosed with tuberculosis within the three-year period. A total of 4 patients have been diagnosed with Leishmaniasis, an endemic disease in Syria, in the same period [13,14].

Conclusion

It has been found in our study that there have been a substantial number of applications by the Syrian nationals in three years to a tertiary hospital at an approximate distance of 750 km to the Syrian border. It is obvious that, with increasing immigration to Turkey, the applications to healthcare services will continue to increase. Our results showed that the Syrian nationals most frequently admitted to the hospital for emergency care and that the most frequent diagnoses in these patients were those related to the infectious diseases. The fact that refugees have to survive in unsuitable conditions means that they are at risk of various problems such as malnutrition, anemia, trauma, and in particular infectious diseases. The results of our study support that it is necessary to take measures for improving the living conditions of refugees. In addition, it is very important for patients to have easy access to health services for these diseases. In this context, it is of great importance that the Syrian patients are followed-up by family physicians for the treatment of diseases that can be easily managed in the primary healthcare facilities, so that they benefit from preventive care services and the burden of secondary and tertiary healthcare facilities are reduced.

We also conclude that; the cost of healthcare services provided to the Syrian refugees should be evaluated separately and, future studies should be directed at investigating the disproportionately higher number of hospital visits in more detail to prevent abuse of services.

Declaration of conflict of interest

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