Original Article / Özgün Araştırma

Differences in Obstetric Outcomes and Antenatal Follow-up Between Syrian Refugees and Resident Women: A Retrospective Comparative Study in a Maternity Hospital Aydın, Turkey

Türkiye'de Yaşayan Suriyeli Mülteciler ile Yerel Gebeler Arasındaki Obstetrik Sonuçlar ve Antenatal İzlemedeki Farklılıklar: Retrospektif Karşılaştırmalı Bir Çalışma, Aydın Kadın Doğum ve Çocuk Hastanesi, Türkiye

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Keywords
Obstetric outcome, antenatal care, refugees

Anahtar Kelimeler
Obstetrik sonuçlar, doğum öncesi bakım, mülteciler

Received/Geliş Tarihi : 05.10.2020
Accepted/Kabul Tarihi : 05.04.2022

doi:10.4274/meandros.galenos.2022.26566

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Abstract

Objective: This study compared Syrian refugees' antenatal follow-up characteristics and pregnancy outcomes with Turkish residents.

Materials and Methods: We performed a retrospective observational study of the births in a Gynecology and Pediatrics Hospital in Aydın-Turkey, between 01.10.2009 and 01.06.2019. The data were obtained from the birth data archives and the medical and laboratory records of the hospital. The demographic characteristics and obstetric-neonatal outcomes were compared between 634 Syrian refugees and 21,092 Turkish residents. The laboratory results and antenatal screening data were compared between 634 Syrian refugees and randomly selected 715 Turkish residents.

Results: Maternal age was significantly lower, adolescent pregnancy rate (age <19), and the parity was significantly higher in the refugee group (p<0.001). Although the cesarean-section (C/S) delivery rate was higher in Turkish residents, the primary C/S delivery rate was similar. C/S delivery due to previous repetitive C/S delivery was significantly higher in the refugee group (p=0.041). Preterm-birth rate (<37 gestational weeks), low-newborn birth weight (<2,500 g), and stillbirth rate was not significantly different between the groups. Mean hemoglobin levels and the rate of maternal anemia was not significantly different between the groups. The attendance to antenatal screening tests (first-trimester combined test, triple test, glucose tolerance tests) was significantly lower in the refugee group (p<0.001).

Conclusion: Compared to Turkish residents, Syrian refugee women had some significant differences in terms of demographic specifications, the application of antenatal screening tests, and laboratory test results. However, the obstetric and neonatal outcomes were not statistically different.

Öz

Amaç: Bu çalışmada, Suriyeli mültecilerin antenatal izlem özelliklerini ve sonuçlarını Türk vatandaşları ile karşılaştırmayı amaçladık.

Gereç ve Yöntemler: Çalışma, 01.10.2009 ve 01.06.2019 tarihleri arasında Aydın Kadın Doğum ve Çocuk Hastanesi'nde gerçekleşen doğumların incelendiği retrospektif gözlemsel bir çalışmadır. Her iki grubun verileri hastanenin doğum veri arşivlerinden ve hastanenin tıbbi ve laboratuvar kayıtlarından elde edildi. Altı

yüz otuz dört Suriyeli mülteci ile 21.092 Türkiye'de ikamet eden kişinin demografik özellikleri ile obstetrik ve neonatal sonuçları karşılaştırıldı. Altı yüz otuz dört Suriyeli mülteci ile rastgele seçilmiş 715 Türk vatandaşının laboratuvar sonuçları ve antenatal tarama kullanımına ilişkin verileri karşılaştırıldı.

Bulgular: Suriyeli mülteci gebeler anlamlı olarak daha gençti, adölesan gebelik sayısı (anne yaşı <19) ve parite mülteci grubunda anlamlı olarak daha yüksekti (p<0,001). Sezaryen (C/S) doğum oranları Türk vatandaşlarında daha yüksek olmasına rağmen, primer C/S doğum oranları gruplar arasında anlamlı farklılık göstermedi. C/S doğum endikasyonları arasında, sadece mükerrer C/S doğum öyküsü nedeniyle C/S doğum mülteci grubunda anlamlı olarak daha yüksekti (p=0,041). Preterm doğum oranları (<37 gebelik haftası), düşük yenidoğan doğum ağırlığı (<2.500 gr) ve ölü doğum oranları gruplar arasında anlamlı bir farklılık göstermedi. Ortalama hemoglobin düzeyleri ve maternal anemi oranları açısından gruplar arasında anlamlı bir farklılık bulunmadı. Mülteci grubunda antenatal tarama testlerine (birinci trimester serum kombine testi, üçlü test, glukoz tolerans testleri) katılım anlamlı derecede düşüktü (p<0,001).

Sonuç: Türk vatandaşları ile karşılaştırıldığında, Suriyeli mülteci kadınların demografik özellikleri, antenatal tarama testlerinin uygulanması ve laboratuvar test sonuçları açısından bazı anlamlı farklılıkları gözlenmiştir, ancak obstetrik ve neonatal sonuçlar gruplar arasında istatistiksel olarak farklı bulunmamıştır.

Introduction

Over 7 million Syrian citizens were forced to leave their country to escape the civil war in March 2011. Currently, about 3,6 million registered Syrian refugees live in Turkey (1). Though refugees, especially pregnant women, are considered a vulnerable group, the Republic of Turkey Ministry of Health provides unrestricted access to health care services for the Syrian refugees (2).

Despite unrestricted access to health care services, pregnant refugee women may encounter numerous barriers to reaching antenatal care services due to low socioeconomic status, language, and cultural barriers (3,4). As shown in previous studies, this vulnerable population is more prone to perinatal complications such as low birth weight, preterm birth, increased cesarean-section (C/S) delivery rate, intrapartum bleeding, and puerperal infections (5-7).

The current study aimed to compare the pregnancy characteristics, perinatal risk factors, attendance to antenatal screening tests, and obstetric-neonatal outcomes of Syrian refugees with Turkish residents, both delivered in a public hospital (Aydın Gynecology and Pediatrics Hospital) located on the western coast of Turkey between 2009 and 2019.

Materials and Methods

A retrospective study was conducted using the data retrieved from the births in Aydın Gynecology and Pediatrics Hospital between 01.10.2009 and 01.06.2019. The hospital's birth data archives and laboratory results system were scanned to obtain information about the antenatal follow-up data and the obstetric-neonatal outcomes. The data of the Syrian refugee women were compared with Turkish residents. The ethical approval for the study was received from the İzmir Katip Çelebi University Non-Interventional Clinical Studies Institutionel Review Board (decision number: 289, date: 03.10.2018), and permission was obtained from the hospital's management to scan the archives.

The birth data, including maternal age, number of pregnancies and parity, the gestational week at delivery, number of multiple gestations, mode of delivery, C/S delivery indication, primary C/S delivery rate, newborn gender, birth weight, preterm delivery (<37 gestational weeks) rate, post-term pregnancy rate (>42 gestational weeks), low newborn birth weight (<2,500 g), macrosomic newborn (>4,500 g), and number of stillbirths, were compared between 634 Syrian refugees and 20,438 Turkish residents. Additionally, the laboratory data including hemoglobin (Hb) level, mean corpuscular volume (MCV), platelet count, hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs) status, glucose tolerance test (GTT) results, the number of antenatal screening tests (first-trimester combined test, triple test, and GTTs) performed, and blood type status were compared between 634 Syrian refugees and randomly selected 715 Turkish residents.

Statistical Analysis

Statistical analyses were performed by SPSS version 20.0 (IBM. Armonk, NY, USA). Kolmogorov-Smirnov test was used to assess the normal distributions of continuous variables. The descriptive variables were expressed as mean ± standard deviation or median (range). Independent samples t-test or Mann-Whitney U test were used to compare numerical variables. The categorical data were analyzed by the

χ^2 test or Fisher's Exact test. P<0.05 was considered to be statistically significant.

Results

Compared to Turkish residents, maternal age was significantly lower, adolescent pregnancy (maternal age <19) rate and the parity were significantly higher in the refugee group (all p<0.0001) (Table 1). Gestational age at delivery, preterm birth (<37 gestational weeks) rate, low newborn birth weight (<2,500 g) rate, and stillbirth rate were not statistically different between the groups. Although newborn birth weight was significantly higher in the Turkish residents, the amount of macrosomic newborns (>4,500 g) was not significantly different between the groups (p<0.010, p=0.3293 respectively). C/S delivery rate was significantly higher in Turkish residents (p<0.0001), but the primary C/S delivery rate was similar in both groups (Table 2). Among C/S delivery indications, only C/S delivery for previous repetitive C/S delivery was significantly higher in the Syrian refugee group (p=0.0416) (Table 3). Mean Hb value, platelet count, the number of anemic (Hb <11 mg/dL), and thrombocytopenic patients (platelet <150,000/mcL) at submission for delivery were not significantly different between the groups. However, MCV was significantly lower and women who have an MCV <80 fL were significantly higher in the Syrian refugee group (p=0.0016 and p=0.0081 respectively). Serum fasting glucose levels were not statistically different between the groups. Among patients who have performed an oral GTT for gestational diabetes mellitus (GDM) screening, the number of patients diagnosed with GDM was not statistically different between the groups. The number of patients accepted receiving a GTT, first-trimester combined test, and triple test was significantly lower in the Syrian refugee group (all p<0.0001). HBsAg positivity was not significantly different between the groups. However, patients who are positive for Anti-HBs were significantly higher in the Turkish resident group (p<0.0001) (Table 4). We analyzed the blood types of both ethnic groups. In Turkish pregnant women, A Rh-positive was the most common blood type (38.24%). 0 Rh-positive was the most common blood type in the Syrian refugee group (31.54%). Rh (-) prevelance was comparable between the groups, 10.9% in Turkish women, and 11.67% in Syrian refugees (p=0.667).

Table 1. Demographic characteristics of the study groups

Variable	Turkish residents n (mean ± SD) or n (%)	Syrian refugees n (mean ± SD) or n (%)	p-value
Maternal age	20,430 (27.26±5.84)	634 (23.65±5.45)	<0.0001*
Adolescent pregnancy (<19 years)	848 (4.15%)	90 (14.19%)	<0.0001*
Parity	710 (1.07±1.04)	610 (1.34±1.55)	0.0001*

*Statistically significant p-value, SD: Standard deviation

Discussion

In the present study, although some significant differences in demographic specifications, application of antenatal screening tests, and laboratory test results between Turkish resident and Syrian refugee pregnant women were observed, the perinatal outcomes were not statistically different between the groups.

Our study showed that maternal age was significantly lower, and the adolescent pregnancy rate and the parity were significantly higher in the refugee group. Our findings were in line with the results of the previous studies conducted in Turkey (8,9). In our study, the C/S delivery rate in both groups was higher than 10 to 15%, as stated by the World Health Organization (WHO) (10). The C/S delivery rate in our study was significantly higher in Turkish pregnant women. This finding was in line with the previous studies conducted in Turkey (11) and other countries (5,9). Unlike our study, Huster et al. (11) reported that refugees had increased complications diagnosed during the delivery period that often required emergent C/S delivery leading to higher C/S rates compared to Lebanese women. In our study, the primary C/S delivery rate was not different between the groups. Unlike our study, in the previous two studies, the authors reported lower C/S delivery rates in nulliparous Syrian patients (8,12). We thought that the lower C/S delivery rate among Syrian refugees might be due to the higher parity rate among the refugees, and may be due to the beliefs and motivation of Syrian women regarding vaginal delivery. Turkish residents' higher C/S delivery rate may be due to older maternal age and increasing chronic diseases (13).

Table 2. Neonatal and Obstetric outcomes of the study groups

Variable	Turkish residents n (mean ± SD) or n (%)	Syrian refugees n (mean ± SD) or n (%)	p-value
Newborn sex			
Female Male Ambiguous	9,944 (48.65%) 10,492 (51.33%) 2 (0.01%)	324 (51.10%) 310 (48.90%)	0.2410
Stillbirth	118 (0.57%)	4 (0.63%)	0.8610
Multiple pregnancy	420 (2.5%)	12 (1.89%)	0.8874
Type of delivery			
Vaginal delivery	12,674 (62.01%)	470 (74.13%)	<0.0001*
C/S delivery	7,664 (37.49%)	159 (25.07%)	<0.0001*
Vacuum delivery	100 (0.50%)	5 (0.79%)	0.4425
Primary C/S delivery	3,572 (46.60%)	75 (47.17%)	0.9519
Newborn weight (g)	20,436 (3208.55±521.7)	634 (3074±492.08)	<0.0001*
Gestational age at delivery (weeks)	20,438 (38.73±1.69)	634 (38.81±1.89)	0.4252
Preterm birth (<37 weeks)	1,937 (9.48%)	55 (8.67%)	0.5396
LBW (<2,500 g)	1,534 (7.50%)	61 (9.62%)	0.0566
Macrosomic newborn (>4,500 g)	106 (0.52%)	1 (0.16%)	0.3293
Post-term pregnancy (>42 gestational weeks)	190 (0.93%)	9 (1.42%)	0.2952

*Statistically significant p-value. LBW: Low birth weight, C/S: Cesarean-section, SD: Standard deviation

Table 3. C/S delivery indications of the study groups

C/S delivery indication	Turkish residents n (%)	Syrian refugees n (%)	p-value
A single history of C/S delivery	2,935 (38.29)	51 (32.07)	0.1174
History of two or more C/S deliveries	1,127 (14.70)	33 (20.75)	0.0416*
Cephalopelvic discrepancy	667 (8.7)	13 (8.17)	1
Arrested labor	721 (9.4)	14 (8.8)	0.8913
Macrosomic fetus	178 (2.32)	2 (1.25)	0.5895
Fetal distress	977 (12.74)	20 (12.57)	1
Multiple pregnancies	277 (3.61)	6 (3.77)	0.8296
Breech presentation	495 (6.46)	13 (8.17)	0.4132
Eclampsia	2 (0.02)	0	1
Hypertensive disorders	61 (0.79)	0	1
Transverse lie	29 (0.37)	2 (1.25)	0.1303
Placental abnormalities	68 (0.88)	1 (0.62)	1
Fetal cord prolapsus	12 (0.15)	0	1
Others	115 (1.5)	4 (2.51)	0.3082

*Statistically significant p-value, C/S: Cesarean-section

In our study, the indications for C/S delivery were broadly similar in both groups. The most common indication for performing a C/S delivery was the history of previous C/S delivery in both groups. Among the C/S delivery indications, only the C/S delivery rate due to repetitive C/S history was significantly higher in the Syrian refugee group. Similar to our study, it was reported that the history of a repeated C/S delivery

was the most common reason for C/S deliveries among the Syrian refugees in Lebanon and Jordan (5,11).

Regarding the obstetric outcomes, we found that the mean gestational week at delivery, the preterm birth rate (<37 gestational weeks), and the stillbirth rate were not significantly different between the groups. Although the mean newborn birth weight of the refugee group was significantly lower than residents, the rate of low newborn birth weight and fetal macrosomia was not significantly different between the groups. Unlike our study, in several studies conducted either in Turkey or other countries, the preterm birth rate and unfavorable obstetric outcomes were significantly higher among the refugee group (6,12). In their study, Thomas et al. (14) evaluated the effect of cultural and linguistic diversity on pregnancy outcomes, and they did not find a significant relationship between refugee status and adverse outcomes. They showed that attendance to interpretation services reduced the likelihood of adverse outcomes (14). In a systematic review where the pregnancy outcomes among immigrant women in the United States and Europe were evaluated, the authors showed that the prevalence of low birth weight among migrants varied by the host country and the composition of migrants to different regions (15). According to the authors, the primary determinant of migrant health was the migrant "regime" in different countries at specific periods. In our study, we thought that the lack of statistical difference, in terms of adverse obstetric outcomes between the two groups, might be related to refugee policies implemented by the Republic of Turkey and the fact that most of the refugees included in our study are residing in houses rather than camps which have unfavorable conditions. We thought that the lower mean newborn weight among Syrian refugees might be due to ethnic differences.

We also found that the mean Hb levels and the rate of prenatal anemia were not significantly different between the groups. In their study, Erenel et al. (8) reported that, although Syrian patients had significantly lower Hb levels compared to Turkish patients, the mean Hb level of the Syrian patients was not less than 11 g/dL. This finding was similar to the mean Hb level of the Syrian refugees in our study, which was 11.47 g/dL. They said that, compared to residents, refugees had poor antenatal care, but adverse perinatal outcomes were not observed among them. In our study, although the rate of GDM was not statistically different between the groups, we would not be able to report the exact prevalence of GDM in both groups because few either Turkish residents or Syrian refugee pregnant women performed a GDM screening test (11.34% and 4.60% respectively). Similar to our study, Ozel et al. (12) could not state and compare the prevalence of GDM in the refugee group

Table 4. Laboratory characteristics of the study groups

Variables	Turkish residents n (mean ± SD) or n (%)	Syrian refugees n (mean ± SD) or n (%)	p-value
Hb (g/dL)	715 (11.56±1.44)	634 (11.47±1.47)	0.2547
Hb <11 g/dL	233 (32.59%)	211 (33.28%)	0.8164
MCV (fL)	715 (80.91±6.92)	634 (79.68±7.34)	0.0016*
MCV <80 fL	277 (38.74%)	291 (45.89%)	0.0081*
Platelet* 1,000/mcL	715 (206.6±58.64)	634 (217.1±63.91)	0.0016*
Platelet <15,0000/mcL	117 (16.36%)	84 (13.25%)	0.1254
Fasting blood glucose level (mg/dL)	99 (84.11±9.551)	26 (84.50±12.12)	0.8619
Accept GTT	81 (11.34%)	29 (4.60%)	<0.0001*
GDM (+)	29 (35.8%)	9 (31.03%)	0.8203
Accept genetic screening tests	423 (59.16%)	190 (29.97%)	<0.0001*
HBsAg (+)	9 (1.26%)	2 (0.32%)	0.0696
Anti-HBs (+)	232 (51.79%)	25 (19.23%)	<0.0001*

*Statistically significant p-value. SD: Standard deviation, Hb: Hemoglobin, MCV: Mean corpuscular volume, GTT: Glucose tolerance test, GDM: Gestational diabetes mellitus, HBsAg: Hepatitis B surface antigen, Anti-HBs: Hepatitis B surface antigen

due to the low attendance rates of Syrian pregnant women in GDM screening tests.

In the present study, we found that the rate of patients who performed the first-trimester combined test or triple test was significantly lower in the refugee group. Furthermore, the rate of patients who had performed GTT for GDM screening was significantly lower in the refugee group. In another study conducted in Turkey, Ozel et al. (12) reported that rates of antenatal follow-up, first-trimester serum combined test, triple testing, and GDM screening were significantly lower in the refugee group. In their study, Abbasi-Kangevari et al. (16) reported that Syrian refugee pregnant women did not comply with both Iran national guidelines or WHO antenatal care recommendations, and they thought that Syrian women kept their cultural behavior in terms of antenatal care utilization. Similarly, we thought that the difference might be due to low socioeconomic status, language barrier, social isolation of the refugees, or differences in religious and cultural perspectives on events of both groups.

In our study, the difference in the seroprevalence of Hepatitis B infection between Turkish and Syrian pregnant women was not statistically significant. Our results were in line with the study conducted by İnci et al. (17) in Turkey. However, in our study, the rate of pregnant women who have antibodies against HBsAg was significantly higher in Turkish residents. The low anti-HBs rates among Syrian refugees were in line with the previous two studies conducted in Syria (18,19).

The study had a retrospective design, and the data were obtained from a single hospital. For that reason, we could not scan the data, including nutrition habits, weight gain during pregnancy, education levels, number of members in the family, and monthly financial incomes of the family for each patient.

Despite its retrospective design, our study has a large data set that compares the obstetric-neonatal outcomes and antenatal monitoring parameters of Turkish residents with Syrian refugees through the data obtained from over 21,000 pregnant women.

Conclusion

Compared to Turkish residents, Syrian refugee women had some significant differences in terms of demographic specifications, application of antenatal screening tests, and laboratory test results, but the obstetric and neonatal outcomes were not statistically different between the groups. We thought that the results of our study can provide informative data to the governments of countries hosting refugees for the organization of health care policies. Multicenter studies with more extensive series and investigating different lines about this subject are needed.

Ethics

Ethics Committee Approval: The ethical approval for the study was received from the İzmir Katip Çelebi University Non-Interventional Clinical Studies Institutionel Review Board (decision number: 289, date: 03.10.2018).

Informed Consent: Retrospective study.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: E.B.G., Design: E.B.G., Data Collection or Processing: S.K.K., Analysis or Interpretation: E.Ş.G., Literature Search: E.Ş.G., Writing: S.K.K.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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