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Obstetric Outcomes of Syrian Refugees and Turkish Citizens

Ahkam Göksel Kanmaz, MD[1*]; Abdurrahman Hamdi İnan, MD[1]; Emrah Beyan, MD[1]; Su Özgür, MD[2]; Adnan Budak, MD[3]

[1]Department of Obstetrics and Gynecology, Tepecik Training and Research Hospital Izmir, Turkey
[2]Department of Biostatical, Faculty of Medicine, Ege University Izmir, Turkey
[3]Izmir Provincial Health Directorate, Izmir, Turkey

Abstract

Background: To present the differences in prenatal, labor and neonatal outcomes for Syrian refugees and Turkish citizens.

Methods: Between January 2013 and December 2016, all patients in our hospital were screened retrospectively. Totally, 17000 pregnant women included in the study were divided into three groups: group 1: 4802 pregnant in Syrian refugees group; group 2: 6752 pregnant in the low-income Turkish citizens (LI groups); and group 3: 5446 women in high-income Turkish citizens (HI groups). The groups were compared for demographic parameters, prenatal, labor and postnatal results.

Results: Age, gestational week, birth weights, antenatal follow-up, antenatal iron supplementation and prenatal hemoglobin (Hb) values were significantly lower in the Syrian refugee group ($P < 0.001$). Only moderate preterm delivery and moderate low birth weight were higher in the refugee group ($P = 0.023$ and $P = 0.001$). Stillbirth rates were similar in all three groups ($P = 0.203$), but all other neonatal complications were higher in the Turkish citizens group.

Conclusion: In comparison to non-refugee control patients, adverse perinatal outcomes were not observed in pregnant refugees. The refugee health policies of the Republic of Turkey seem to be working. However, further larger multicenter studies may provide more convincing data about obstetric outcomes and health results in the Syrian refugee population.

Keywords: Neonatal, Outcome, Pregnancy, Prenatal, Refugee, Syrian

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Introduction

In our longest border neighbor Syria, a civil disturbance broke out on March 15, 2011, which still continues. As a result, many Syrian citizens were forced to flee their country. According to a report by the United Nations Refugee Agency dated April 26, 2018, over 5650000 Syrians are refugees, and over 3500000 Syrians have been accepted by Turkey.[1] The number of refugees kept increasing each year after the civil disturbances, and the world still struggles to overcome this crisis. Approximately 8% of the refugees stay in refugee camps in Turkey.[2] The majority of the refugees are trying to survive outside refugee camps, and their struggles in terms of accommodation, food, employment, and medical care are known.

Almost 25% of the refugee population consist of women aged 18–59.[1] One of the most important medical problems of these women, most of whom are in their reproductive ages, is related to reproductive health. The Republic of Turkey provides free healthcare services for refugees to address these issues. According to the report of the Human Rights Commission of the Grand National Assembly of Turkey, approximately 600 million Turkish liras were invoiced for the healthcare expenses of refugee patients and pregnant women until October 2017; however, the exact figures could not be assessed.[3] According to the same report, a total of 224750 Syrians have given birth in Turkey since October 2017.[3]

Pregnancy, which creates difficulties in women's life, becomes even more difficult for refugees. Previous studies on pregnant refugee women have suggested increased pregnancy-related complications.[4-6] However, a study by Demirci et al[7] in 2016 compared the pregnancies of Turkish citizen and Syrians refugees and found no significant differences except for gestational diabetes. Similarly, neonatal complications were reported to have increased in refugees.[8,9] Studies on refugees from different nations have reported different pregnancy results, despite similar environmental conditions.[10,11] Therefore, there are many factors for increased pregnancy complications in refugee populations. Difficulties in accessing healthcare services, nutritional problems, environmental factors such as the conditions of the country, perspective of the refugee population with regard to pregnancy, genetic factors, and differences from previous pregnancy management methods affect pregnancy complications.

Our study aims to present prenatal, birth and neonatal outcomes of pregnant Syrian refugees and compare the results with the pregnant Turkish citizens.

***Corresponding Author:** Ahkam Göksel Kanmaz, MD; Department of Obstetrics and Gynecology, Tepecik Training and Research Hospital Izmir, 35170, Turkey
Tel: +90 530 820 54 83, Fax: +902324330756, Email: drgokselkanmaz@gmail.com. Orcid İ D: 0000-0002-1473-0472

Patients and Methods

Retrospectively, we screened approximately 43120 pregnant patients who had been admitted to the Tepecik Training and Research Hospital Gynecology and Obstetrics Clinic between January 2013 and December 2016. We included pregnant women who had given birth after 20 gestational weeks, with neonatal birth weights of >500 g and for whom postnatal examination had been performed by our pediatricians. Pregnant women with incomplete data in the hospital information system, those referred to another center due to maternal or infant issues were excluded from the study. Among all subjects, 26120 pregnant women who failed to meet the inclusion criteria were excluded, and the study was conducted with 17000 pregnant women.

Pregnant women included in the study were divided into three groups: 4802 women in the refugee group consisting of pregnant Syrian refugees; 6752 women in the low income citizens (LI groups) of the Republic of Turkey whose healthcare expenses are covered by the state like the pregnant refugees and who live in a household with an average monthly income per person lower than 1/3 of the current minimum wage (approximately $154 for 2018); and 5446 women in the higher income citizens (HI groups) of the Republic of Turkey who are actively employed and have their healthcare expenses deducted from their incomes. The groups were compared in terms of age, pre-pregnancy body mass index (BMI), fetal gender, parity, gestational week, birth weight, and antenatal follow-up frequency in accordance with the pregnancy follow-up guide[12] of the Republic of Turkey's Ministry of Health, hemoglobin (Hb) value before birth and demographic parameters such as iron replacement therapy rates and prenatal, labor, and postnatal results.

Gestational age was determined using the date of the last maternal menstruation or the crown-rump length at the first trimester ultrasonography. Pregnant women with first trimester vaginal bleeding and fetal heart beats in ultrasonography but no cervical dilation in the speculum examination were considered as threatened abortion. Patients presenting with nausea and vomiting, positive ketone finding in complete urine analysis and >5% weight loss were considered as hyperemesis gravidarum. Patients with hypertension and preeclampsia diagnosis as per the American College of Obstetricians and Gynecologists (ACOG) 2013[13] criteria and gestational diabetes mellitus (GDM) as per the American Diabetes Association (ADA) 2012[14] and 2014[15] recommendations during pregnancy were included in the study. Patients with delivery at week 37 of gestation or earlier were considered as preterm birth. Preterm births (PTB) were divided into subgroups of late PTB (32–37 weeks), very PTB (28–32 weeks) and extreme PTB (<28 weeks). Delivery methods were divided into three groups: vaginal delivery, instrumental delivery (vacuum or forceps), and C-section (C/S). Women who had delivered via C-section were divided into two groups as primary and repeat C-section. Placental invasion anomalies and placental abruption diagnoses were established using imaging methods (ultrasonography and magnetic resonance imaging) and examination. Birth weights of <2500 g were considered as low birth weight (LBW), with those <1000 g categorized as extremely LBW (ELBW), those <1500 g as very LBW (VLBW), and those <2500 g as moderate LBW (MLBW). Birth weights of ≥4000 g were considered as macrosomia. Data such as 5-min Apgar scores, stillbirth rates, and neonatal intensive care needs were recorded based on the delivery room and neonatal intensive care information system.

Statistical Analysis

Kolmogorov-Smirnov and Shapiro-Wilk tests were selected in accordance with the number of pregnancies for normality tests, and a normal distribution pattern was accepted if $P > 0.05$ and boxplot and histogram were used as graphical methods for normality tests. Also, the Q-Q plot and probability plot were checked. Mean ± standard deviation was used for normally distributed data, and median (min, max and interquartile range) was used for non-normally distributed data. One-way analysis of variance test and independent sample *t*-tests were used for variables with parametric distribution and Kruskal-Wallis and Mann-Whitney U tests were used for variables with non-parametric distribution. Chi-square test was used first as three then as two conditions for intergroup categorical variables. Results were presented as frequency and percentage. A P value of <0.05 was considered as statistically significant. Odds ratios (OR) (95% CI) were calculated for refugee population and multivariable logistic regression modeling was used for adjusted odds ratios (AOR 95% CI). The potential confounders of possible associations between advanced refugee status and risk of adverse pregnancy outcomes were defined based on the literature. Statistical analyses were conducted using SPSS 22.0 for Windows (SPSS Inc., Chicago, IL).

Results

Age, pre-pregnancy BMI, gestational week, and birth weights of babies for the refugee group were statistically significantly lower than those of the Turkish citizens, regardless of the income levels ($P < 0.001$, $P < 0.001$, and $P < 0.001$, respectively). There was a significant relation between refugee group and Lİ group with nulliparity; women in the HI group were more frequently multiparous ($P < 0.001$). There was no significant difference in fetal sex among the groups. The participation of women in the refugee group in antenatal follow-ups was lower than the other groups ($P < 0.001$) and the incidence of refugee pregnant women who did not participate in the antenatal follow-up was significantly higher ($P < 0.001$). Antenatal iron supplementation incidence and prenatal Hb values

were significantly lower in the refugee group ($P < 0.001$). The demographic distribution of pregnant women is summarized in Table 1.

Table 2 compares the groups in terms of prenatal complications. Hyperemesis gravidarum and threatened abortion incidence were significantly lower in the refugee group (AOR 0.64, 95% CI: 0.51 and 0.76, $P < 0.001$ and AOR 0.51; 95% CI: 0.17 and 0.71, $P < 0.001$). The incidence of preeclampsia and GDM was detected to be significantly lower in the refugee group (AOR 0.64, 95% CI: 0.32 and 0.89; $P < 0.001$ and AOR 0.67, 95% CI: 0.59 and 1.01; $P < 0.001$). The rate of placental pathologies (abruption and previa) was found similar between groups, except for placenta previa rate in the LI group ($P = 0.03$). Sub-group examination of PTB showed significantly higher extreme PTB rates in the Turkish pregnant women ($P = 0.028$) and significantly higher late PTB rates in the refugee group ($P = 0.023$). Also, PTB incidence was detected higher in the refugee group (AOR 1.28, 95% CI 1.01 and 1.38). The vaginal birth rate of the refugee group was significantly higher ($P < 0.001$) and the C-section and primary C-section rates were detected significantly higher in the Turkish pregnant group ($P < 0.001$ and $P < 0.001$). The vertex presentation rate was statistically higher in both Turkish citizens groups, and breech presentation rates were statistically significantly higher in the refugee group ($P < 0.001$).

The neonatal outcomes of pregnant women are summarized in Table 3 and the odds ratios of all pregnancy outcomes are summarized in Table 4. ELBW and VLBW rates were significantly higher in both groups compared to the refugee group ($P = 0.002$ and $P = 0.009$). However, MLBV incidence was found higher in the refugee group ($P = 0.001$). The incidence of fetal macrosomia in the refugee group was found to be significantly lower (AOR 0.69, 95% CI: 0.51 and 0.72, $P < 0.001$). Neonatal intensive care need was significantly higher in the two Turkish citizens groups (AOR 0.80, 95% CI: 0.31 and 0.96 $P = 0.045$). Rates of stillbirth and 5-minute APGAR score of <7 were significantly higher in the LI group than the refugee group ($P = 0.02$), and there was no statistically significant difference between the HI and refugee groups.

Discussion

As a result of the ongoing civil disturbances since 2011, a serious migration wave has started from Syria to neighboring countries. Syrian refugees in Turkey include 57.7% women, 39.3% of whom are 18–28 years old and 37.1% are 30–44 years old.[16] It would be reasonable to expect increased pregnancy and therefore, increased pregnancy complications. The Republic of Turkey has developed a system wherein healthcare expenses of Syrian refugees are covered by the state to ensure that the refugees have access to healthcare services outside refugee camps. Within the scope of this system, pregnant refugees are provided with free-of-cost antenatal follow-up and vitamin and iron supplementation in line with the routine pregnancy follow-up guide of the Ministry of Health.[12] As our hospital is a reference hospital for western Turkey, pregnancy follow-up, delivery, and neonatal care are provided at our clinic to the refugees.

In this study, pregnant women of the refugee group were found to be significantly younger and to have lower gestational weeks, birth weight, and pre-pregnancy BMI

Table 1. Differences in Demographic Variables Between the Groups

Variable	Refugee Group (n, 4802)	Low Income Group (n, 6752)	High income Group (n, 5446)	*P* Value	*P* Value 1 vs. 2	*P* Value 1 vs. 3	*P* Value 2 vs. 3
Age, years median (min–max, IR)	23 (13–49, 9)	26 (13–51, 10)	28 (18–50, 9)	<0.001[c]	<0.001[a]	<0.001[a]	<0.001[a]
BMI, mean ± SD	22.9 ± 3.1	23.3 ± 2.9	23.0 ± 3.9	0.003[d]	<0.001[b]	0.15[b]	<0.001[b]
Mean birth weight, grams median (min–max, IR)	3100 (500–5450, 635)	3155 (500–5330, 710)	3200 (500–5480, 830)	<0.001[c]	<0.001[a]	<0.001[a]	0.003[a]
Mean birth week, median (min-max, IR)	38 (21–43, 2)	38 (21–42, 3)	39 (20–43, 3)	<0.001[c]	<0.001[a]	<0.001[a]	0.341[a]
Parity							
Nulliparous	2031 (42.3%)	2314 (34.3%)	1624 (29.8%)	<0.001[1]	<0.001[1]	<0.001[1]	<0.001[1]
Multiparous	2771 (57.7%)	4438 (65.7%)	3822 (70.2%)				
Sex of the infant							
Male	2444 (50.9%)	3369 (49.9%)	2778 (51%)	0.385[1]	0.283[1]	0.912[1]	0.227[1]
Female	2358 (49.1%)	3383 (50.1%)	2668 (49%)				
Antenatal follow-up, times							
At least 4	2727 (56.8%)	5617 (83.2%)	5206 (95.6%)	<0.001[1]	<0.001[1]	<0.001[1]	<0.001[1]
Never	826 (17.3%)	486 (7.19%)	70 (1.3%)	<0.001[1]	<0.001[1]	<0.001[1]	<0.001[1]
Hemoglobin, g/dL (min-max, IR)	10.98 (5.1–15.4, 1.2)	11.59 (5.8–16.3, 1.7)	11.65 (5.7–16.6, 1.8)	<0.001[1]	<0.001[a]	<0.001[a]	0.054[a]
Iron replacement therapy	1911 (39.8%)	5314 (78.7%)	4487 (82.4%)	<0.001[1]	<0.001[1]	<0.001[1]	<0.001[1]

[a] *P* values were calculated with Mann-Whitney U test; [b] *P* values were calculated with independent sample t test; [c] *P* values were calculated with Kruskal-Wallis test; d *P* values were calculated with ANOVA test; [1] *P* values were calculated with the chi-square test.

Table 2. Differences in Prenatal Complications between the Groups

Variable (n, %)	Refugee Group (n, 4802)	Low income Group (n, 6752)	High income Group (n, 5446)	*P* Value	*P* Value 1 vs. 2	*P* Value 1 vs. 3	*P* Value 2 vs. 3
Threatened abortion, No. (%)	100 (2.1)	238 (3.5)	231 (4.2)	<0.001	<0.001	<0.001	0.045
Hyperemesis gravidarum	42 (0.9)	147 (2.2)	146 (2.7)	<0.001	<0.001	<0.001	0.08
Preeclampsia, No. (%)	76 (1.6)	287 (4.3)	202 (3.7)	<0.001	<0.001	<0.001	0.148
GDM, No. (%)	59 (1.2)	461 (6.8)	313 (5.7)	<0.001	<0.001	<0.001	0.016
Placenta previa, No. (%)	13 (0.27)	36 (0.53)	28 (0.51)	0.058	0.03	0.054	0.878
Placental abruption, No. (%)	11 (0.22)	29 (0.42)	17 (0.31)	0.097	0.06	0.379	0.320
Preterm birth, No. (%)							
Before 28weeks	54 (1.1)	120 (1.8)	87 (1.6)	0.028	0.002	0.02	0.39
28–32 weeks	97 (2.1)	168 (2.5)	104 (1.9)	0.058	0.07	0.71	0.02
32–37 weeks	766 (15.9)	937 (13.8)	774 (14.2)	0.023	0.0017	0.016	0.52
Mode of delivery, No. (%)							
Vaginal	2905 (60.5)	2756 (40.8)	2339 (42.9)	<0.001	<0.001	<0.001	0.019
Instrumental	8 (0.2)	15 (0.2)	10 (0.1)	0.49	0.998	0.184	0.167
C-section	1889 (39.3)	3981 (59)	3097 (57)	<0.001	<0.001	<0.001	0.026
Primary C/S	1070 (22.2)	2441 (36.15)	1762 (32.3)	<0.001	<0.001	<0.001	<0.001
Fetal presentation, No. (%)							
Vertex	4533 (94.4)	6468 (95.8)	5228 (96)	0.004	<0.001	<0.001	0.58
Breech	254 (5.3)	250 (3.7)	196 (3.6)	0.003	<0.001	<0.001	0.76
Other	144 (0.3)	41 (0.6)	21 (0.4)	0.23	0.02	0.39	0.12

P values were calculated with chi-square test.

Table 3. Differences in Neonatal Complications between the Groups

Variable (n, %)	Refugee Group (n, 4802)	Low income Group (n, 6752)	High income Group (n, 5446)	*P* Value	*P* Value 1 vs. 2	*P* Value 1 vs. 3	*P* Value 2 vs. 3
LBW (g), No. (%)							
<1000	28 (0.58)	78 (1.15)	61 (1.12)	0.002	0.001	0.003	0.87
1000–1500	52 (1.08)	130 (1.92)	67 (1.23)	0.009	<0.001	0.47	0.002
1500–2500	480 (9.9)	543 (8)	405 (7.4)	0.001	<0.001	<0.001	0.21
Macrosomia, No. (%)	135 (2.8)	383 (5.7)	267 (4.8)	<0.001	<0.001	<0.001	0.02
5-min APGAR score <7, No. (%)	50 (1.04)	143 (2.11)	77 (1.41)	0.009	<0.001	0.09	0.003
Neonatal intensive care need, No. (%)	254 (5.2)	513 (7.5)	362 (6.6)	0.045	<0.001	0.002	0.054
Stillbirth, No. (%)	59 (0.3)	108 (0.6)	72 (0.4)	0.203	0.02	0.39	0.056

P values were calculated with chi-square test.

values than the Turkish pregnant citizens. Similar studies in Turkey and studies in different countries have reported similar results.[6,7,9,17–20] As a result of poor nutrition among the refugee population, our study found lower BMI and birth weight in the refugee group.[21] Nulliparity was found more frequently in the refugee group while multiparity was more frequent in the Turkish pregnancy group in our study as a result of maternal age distribution, similar to the literature.[17,19] However, one study about refugee pregnancy had found a lower frequency of nulliparous pregnancy in refugee groups.[6] Consistent with the literature, there was no relationship between fetal gender and refugee status.[9]

Similar to the literature, we found out that the incidence of sufficient antenatal controls was lower in the refugee group and 17.3% of the patients in the refugee group had no antenatal follow-up.[22] Contrary to our results, Erenel et al[17] found that 41.3% of the pregnant refugees had no antenatal follow-up. The rate of antenatal iron replacement use was lower in the refugee population than the pregnant Turkish women.[19] The refugee group had higher maternal anemia rates than the pregnant Turkish women, which is consistent with the literature.[7,9,17] As a result of poor nutritional conditions and low iron replacement therapy rates, a higher rate of maternal anemia should be expected in the refugee population.

In our study, the pregnant Turkish women had significantly higher incidences of threatened abortion and hyperemesis gravidarum than the refugee group.

Table 4. Odds Ratios of Refugee Group for Prenatal and Neonatal Complications

Variables	Group					
	Unadjusted Odds Ratio			Adjusted Odds Ratio		
	Non-refugee Group	Low Income Group	High Income Group	Non-refugee Group	Low Income Group	High Income Group
Threatened abortion	0.53 (0.43–0.66)	0.58 (0.45–0.73)	0.48 (0.37–0.60)	0.64 (0.51–0.76)	0.67 (0.41–0.71)	0.53 (0.31–0.64)
Hyperemesis gravidarum	0.35 (0.25–0.49)	0.39 (0.28–0.55)	0.32 (0.22–0.45)	0.51 (0.17–0.71)	0.58 (0.21–0.65)	0.47 (0.12–0.68)
Preeclampsia	0.38 (0.30–0.49)	0.36 (0.28–0.46)	0.41 (0.31–0.54)	0.67 (0.59–1.01)	0.76 (0.58–0.97)	0.74 (0.65–1.04)
Gestational diabetes mellitus	0.18 (0.14–0.23)	0.16 (0.12–0.22)	0.20 (0.15–0.27)	0.64 (0.32–0.89)	0.56 (0.23–0.89)	0.71 (0.31–0.89)
Preterm birth	1.11 (1.06–1.3)	1.13 (1.03–1.29)	1.14 (1.02–1.27)	1.28 (1.01–1.38)	1.29 (0.98–1.37)	1.24 (1.03–1.77)
Low birth weight	1.13 (1.03–1.22)	1.14 (1.01–1.32)	1.12 (1.02–1.26)	1.24 (0.98–1.44)	1.18 (0.92–1.54)	1.17 (0.98–1.36)
Macrosomia	0.51 (0.44–0.62)	0.48 (0.33–0.58)	0.56 (0.45–0.69)	0.69 (0.51–0.72)	0.54 (0.41–0.75)	0.67 (0.56–0.72)
Neonatal intensive care need	0.72 (0.62–0.83)	0.67 (0.58–0.79)	0.78 (0.66–0.92)	0.80 (0.31–0.96)	0.75 (0.67–0.89)	0.88 (0.65–0.99)
Stillbirth	0.82 (0.61–.10)	0.75 (0.54–1.04)	0.69 (0.64–1.29)	0.88 (0.56–1.10)	0.78 (0.57–1.12)	0.73 (0.59–1.34)

* Adjusted for maternal prepregnancy BMI, maternal age, antenatal follow-up and iron replacement therapy.

Threatened abortion may be affected by the fact that more pregnant women in the Turkish pregnant group were employed and one-third of pregnant refugee women prefer to stay at home after vaginal bleeding.[24,25] A study that examined refugees from the Middle East in Norway found the incidence of hyperemesis gravidarum at 0.9%–2% in the refugee population, similar to our results.[25] In our study, independent of the income level, pregnant Turkish women had an increased incidence of preeclampsia and GDM compared with the refugee group, consistent with the literature.[7,9,17,19] Unlike our results, Kandasamy et al in 2014[26] found no difference between the refugee population and the control group in terms of the incidence of preeclampsia and GDM. We believe that differences in maternal age, higher calorie nutrition, genetic disposition, and lower participation rate in GDM screening by the refugee population compared with the pregnant Turkish women may have led to the different incidence of preeclampsia and GDM in the refugee and Turkish citizens groups.

In the refugee group, the rate of late PTB was significantly higher than the Turkish pregnant women in our study, similar to the literature.[6,7,19] We believe that the lower rate of extreme and very PTB rates in the refugee group compared to the pregnant Turkish women may have been due to the fact that complicated pregnancies are frequently followed up in our hospital as it is a tertiary center. In our study, vaginal delivery rates were significantly higher in the refugee group and the Turkish citizens groups had higher rates of C-section and primary C-section. There are publications supporting our results[8,9] whereas some other studies have reported higher rates of C-section in the refugee population.[7,19] However, considering the higher rates of advanced maternal age and pregnancy complications among the pregnant Turkish women in our study, it would not be surprising to expect higher rates of C-section and primary C-section rates. In our study, similar to the literature, breech position was more frequent in the refugee group than the Turkish citizens groups.[7,9] Although average birth weight was lower in the refugee group, the frequency of LBW subgroups, except MLBW (ELBW, VLBW) was higher in Turkish pregnant women compared to the refugee groups, contrary to the literature.[9,17] The difference between our results and the literature may be due to the high rate of pregnancy complications in our control group and the fact that our hospital is a tertiary hospital. Consistent with the literature, macrosomia rate was found higher in Turkish pregnant women.[9] In the HI and LI groups, the number of infants with 5-min APGAR scores of <7 and those requiring neonatal intensive care was higher than the refugee group, similar to studies addressing refugee pregnancies conducted in Turkey[7,19]; however, contrary results have been obtained in studies conducted outside Turkey.[9,10] In our study, stillbirth rate was almost ten times that of the country average.[27] Stillbirth rates were similar between the refugee and HI groups and higher in the LI group than in the refugee group in our study. Erenel et al[17] found similar mortality rates between the groups, like our study , similar to our results. However, Buyuktiryaki et al[8] found a higher mortality rate among refugee infants compared to Turkish citizens infants. As a result of higher pregnancy complications in the Turkish pregnant group, neonatal outcomes may be worsened compared to the

refugee group. Complicated pregnancies from almost the entire western region of Turkey are referred to our hospital, and most of them have been Turkish. Because of their family structure and financial problems, many refugee pregnant women often refuse to leave their original cities and hospitals. Hence, the incidence of newborn complications in the Turkish population may be related to the pregnant population of our hospital.

Our study has the highest number of Syrian refugee pregnancies, which were reviewed starting from the pregnancy follow-up till the postnatal examination of the infants. The strength of our study is in the large number of patients included in the study. Another important characteristic of our study is that Turkish citizens with low income similar to Syrian refugees were assigned to a separate group, and their results were separately compared. This was done in an attempt to avoid different results and possible biases that could have occurred due to income level. A limitation of our study is its retrospective design. Especially rare pathologies such as placental pathologies were detected rare from the other studies. Because of the non-homogeneity of the groups, the rate of some complications was found different from Turkey average.

Turkey is the most important and the largest neighbor of Syria. Therefore, the highest number of Syrian refugees reside in Turkey. As determined in our study, the refugee health policies of the Republic of Turkey have positively affected refugee pregnancies. However, the refugee problem is not only the problem of Syria which has civil disturbances and Syria's neighbors, but also of the whole world. Therefore, conducting prospective multi-center studies on refugees is very important in terms of refugee health and global regulations of future lives of refugees.

Authors' Contribution

AGK: Project development, data collection, manuscript writing. AHİ: Project development, Manuscript writing. EB and AB: Data collection, manuscript writing. SO: data analysis.

Conflict of Interest Disclosures

The authors declare that they have no conflict of interest.

Ethical Statement

The study was approved by the ethics committee of the Tepecik Training and Research Hospital, following the opinion of the Republic of Turkey Ministry of Interior Immigration Office. Informed consent was obtained from all individual participants included in the study.

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