

ORIGINAL ARTICLE

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Characteristics of the immigrant newborns and analysis of short-term results: An example of Giresun** Muhammet Bulut¹,  Dilek Kucuk Alemdar²**¹*Giresun University, Education and Research Hospital, Department of Pediatrics, Giresun, Turkey*²*Ordu University, Faculty of Health Sciences, Department of Pediatrics Nursing, Ordu, Turkey*

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Available online 28.08.2020 with doi: [10.5455/medscience.2020.09.9238](https://doi.org/10.5455/medscience.2020.09.9238)**Abstract**

With this study, it was aimed to evaluate the characteristics of the immigrant and Turkish newborns who were born in our hospital and monitored in the neonatal control unit and to analyze the results. The retrospective and descriptive study included Turkish and immigrant newborns who were born in the Department Obstetrics and Gynecology and Pediatrics of Giresun University Training and Research Hospital between January 2019 and December 2019 and were followed up in the neonatal monitoring unit. A total of 319 babies, 211 of whom were Turkish and 108 were immigrants, were included in the study. While 36% of Turkish newborns were born by a normal spontaneous vaginal delivery, this rate is 66.7% in the immigrant babies ($p < 0.05$). It was determined that the rate of being taken into the neonatal intensive care unit was 18.5% in the immigrant babies and 17.1% in Turkish babies, but there was no significant difference ($p > 0.05$). No significant difference was found between birth weight, height, head circumference, gestational week and cord blood gas values of the Turkish and immigrant newborns ($p > 0.05$). Antenatal follow-up rates in the immigrant mothers (51.9%) were significantly lower ($p < 0.05$) than the Turkish mothers (70.6%). The rate of fetal anomaly was higher in the immigrant newborns than in the Turkish newborns. It was found that Turkish newborns mostly had mothers with gestational diabetes and were mostly diagnosed with hyperbilirubinemia ($p < 0.05$). One baby was death among the immigrant newborns, whereas no dead baby was present among the Turkish newborns. The immigrant and Turkish newborns are born with anthropometrically similar characteristics. However, the immigrant newborns are more often diagnosed with fetal anomaly and more newborns need an intensive care. This may be related to the low antenatal follow-up rate of the immigrant mothers.

Keywords: Neonatal follow-up, immigrant newborn, Turkish newborn**Introduction**

Turkey has been one of the most affected countries since 2011 due to its 911 km limit due to the ongoing chaotic period in the Middle East and especially in Syria and population mobility due to the escalating war, internal conflicts and terrorist activities [1]. As of July 2019, the number of Syrian asylum seekers under temporary protection in our country has been recorded as 3,630,575 [2]. Migrants, whose numbers exceed millions, inevitably face many psychological and physical health problems when trying to live in regions they do not know, in countries they do not understand the language, often under unsuitable conditions, without adequate financial means and social security [3]. When the age distribution of the migrant population migrating out of the country is examined, it is observed that more than half of the population are women and children under the age of 18 and that this group is the most affected by these problems [4]. Migrant mothers and their babies all over the world are experiencing various health problems. These problems primarily affect the mother in the prenatal period, then

the birth process, and then newborns in the postpartum period. The main causes of these problems are unintended pregnancies, high-risk pregnancies, abortion and birth complications, birth trauma, anemia, small for gestational age (SGA) newborns and neonatal sepsis [5-8].

Neonatal monitoring units are generally units where routine care of newborn babies is performed in hospitals and triages are performed according to the levels of care required. These units are units where postpartum adaptation period passes, where necessary resuscitation is performed, primary evaluations and follow-up of home-born babies are performed, as well as routine anthropometric measurements, vitamin K and hepatitis B vaccine are performed. Today, even the first hours or even minutes after birth have become more important in neonatal practice, and the establishment of qualified neonatal monitoring units has resulted in a significant decrease in mortality and morbidity rates of infants [7,8].

This study is to evaluate the characteristics of migrant newborns born in our hospital in 2019 and to contribute to studies for their access to health care institutions and their use of services by comparing them with Turkish newborns and determining the risky status of these newborns.

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Material and Methods

The research was conducted retrospectively and descriptively. Migrant and Turkish newborns born and monitored in the neonatal monitoring unit at Giresun University Obstetrics and Pediatrics Training and Research Hospital between January 2019 and December 2019 were included in the study. The study included newborn babies born in our hospital and monitored in the neonatal unit, excluding home births. Between January 2019 and December 2019, there were a total of 1822 births in the hospital, 108 of whom were immigrants. All 108 migrant babies were included in the study. 211 Turkish newborn babies were randomly selected and included in the study. The study planned to take twice the number of migrant births of Turkish newborns and selected the file numbers multiples of 7 from 1714 files. Of the 244 files, 211 newborns with complete maternal and infant information were included. The introductory information form for the newborns, prepared by the researchers, was filled out from patient files and anamnesis. Mother's age, pregnancy week, smoking and antenatal follow-up status during pregnancy, breast-feeding status within the first 24 hours, presence of pregnancy complications was determined. The baby's gender, birth style, height, head circumference and birth weight, cord blood gas, preductal and post ductal oxygen saturations, neonatal intensive care unit requirements and congenital anomaly were recorded. All babies were given routine neonatal care by the hospital after birth. Routine Hepatitis B vaccination and vitamin K were performed as 1 mg IM. Mothers were given breastfeeding counseling. Permission was obtained from Giresun University Medical Faculty Clinical Research Ethics Committee (09.01.2020/09) for the study. Besides, official permission was obtained from the Giresun Provincial Directorate of Health to carry out the work.

Statistical Analysis

SPSS v21.0 package software was used to analyze the data. The results of the statistical analysis are given as percentile, average, standard deviation. Student t-test and chi-square tests were used to determine the differences between groups. Significance was evaluated as $p < 0.05$.

Results

A total of 319 infants, including 211 Turkish and 108 migrants, were included in the study. The average age of Turkish mothers was 28.10 ± 5.58 and migrant mothers were 27.82 ± 6.36 and there was a statistically significant difference between them ($p < 0.05$). While 70.6% of Turkish mothers received antenatal follow-up, only 51.9% of migrant mothers received antenatal follow-up, a statistically significant difference was found between the groups. It was also determined that there was a statistically significant difference between the birth pattern of Turkish and migrant mothers ($p < 0.05$). 52.6% of Turkish newborns ($n = 111$) and

45.4% of immigrants ($n=49$) were girls ($p > 0.05$). 36% of Turkish newborns ($n=76$) and 66.7% of migrant newborns ($n=72$) were born with normal spontaneous vaginal delivery ($p < 0.05$). The rate of hospitalization in the neonatal intensive care unit was 17.1% ($n=36$) in Turkish newborns and 18.5% ($n=20$) in migrant newborns and a statistically significant difference was not detected ($p > 0.05$). The rate of breastfeeding in the first 24 hours was (63%) in migrant newborns and (78%) in the Turkish newborns, thereby we detected the migrant newborns' rate was significantly lower than the Turkish newborns. ($p < 0.05$) (Table-1).

General clinical characteristics of newborns are given in Table 2. Pregnancy week of Turkish newborns is 37.95 ± 2.05 weeks, birth weight is 3058.30 ± 579.77 gr, length of birth height is 49.47 ± 2.75 cm, length of birth head circumference is 34.33 ± 1.98 cm, gestation week is 37.95 ± 2.05 , 1-minute Apgar score 7.73 ± 0.82 , 5-minute Apgar score is 8.65 ± 0.850 . In migrant newborns, gestation week is 38.06 ± 4.18 weeks, birth weight is 3250.46 ± 686.92 gr, length of birth height is 49.59 ± 5.39 cm, length of birth head circumference is 33.83 ± 3.71 cm, gestation week is 38.06 ± 4.18 , 1-minute Apgar score is 7.48 ± 1.20 and 5-minute Apgar score is 8.62 ± 1.08 . Between the two groups', birth weight, height, length of head circumference, week of pregnancy and 5-minute Apgar scores values there were no significant differences. But 1-minute Apgar score of migrant newborns was significantly lower than the Turkish newborns' score ($p < 0.05$). The duration of stay in the neonatal intensive care unit was 1.42 ± 4.18 days in Turkish newborns and 0.99 ± 3.52 days in migrant newborns and there was no significant difference between them (Table-2).

Pregnancy complications in mothers and the reasons for hospitalization of newborns are given in Table 3. When the distribution of pregnancy complications was examined, in migrant mothers PROM (Premature Rupture of Membranes) was 4.6%, gestational diabetes was 5.6%, preeclampsia was 4.6%, cord prolapsus was 7.4% and an hydramnios were higher than the Turkish newborns. 8.1% ($n=17$) of Turkish newborns were preterm, while 7% ($n=8$) of migrant newborns were preterm. The IUGR infant ratio was 1.9% in migrant newborns and 1.4% in Turkish newborns. When the reason for Neonatal Intensive Care Unit (NICU) hospitalization was examined, the ratio of diabetic mother babies in Turkish newborns was 1.9% ($n=4$), it was higher than in migrant babies, but no significant difference was found. The rate of hospitalization to the neonatal intensive care unit due to hyperbilirubinemia was significantly higher among the migrants (7.4%) and there was a significant difference between the two groups ($p < 0.05$) (Table-3). The proportion of babies with fetal anomalies was 9.25% in migrant newborns and 5.2% in Turkish newborns. The most common type of anomaly was urogenital anomalies ($n=5$). One infant died in migrants, but no Turkish infant died.

Table 1. General characteristics of mothers and newborns

	Turkish newborn (n: 211) Mean±SD n (%)	Migrant newborn(n: 108) Mean±SD n (%)	Test	p value
Maternal age	28.10±5.58	27.82±6.36	t=4.271	0.040
Number of pregnancies	2.37±1.46	2.83±1.72	t=0.294	0.588
Antenatal follow-up (+4)				
Yes	118 (55.9)	17 (15.7)	X ² =47.254	0.000
No	93 (44.1)	91 (84.3)		
Folic acid use				
Yes	189 (89.6)	25 (23.1)	X ² =142.745	0.000
No	22 (10.4)	83 (76.9)		
Smoking during pregnancy				
Yes	18 (8.5)	5 (4.6)	X ² =1.624	0.202
No	193 (91.5)	103 (95.4)		
Complication of pregnancy				
Yes	38 (18.0)	29 (26.9)	X ² =3.807	0.149
No	173 (82.0)	79 (73.1)		
Gender of the newborn				
Girl	111 (52.6)	49 (45.4)	X ² =1.496	0.221
Boy	100 (47.4)	59 (54.6)		
Delivery method				
Normal spontaneous vaginal	76 (36.0)	72 (66.7)	X ² =26.980	0.000
Cesarean	135 (64.0)	36 (33.3)		
Discharge status				
Discharged	175 (82.9)	88 (81.5)	X ² =0.105	0.746
Intensive Care Unit Hospitalization	36 (17.1)	20 (18.5)		
Fetal anomaly				
Yes	11 (5.2)	8 (7.4)	X ² =0.614	0.433
No	200 (94.8)	100 (92.6)		
Breastfeeding in the first 24 hours				
Yes	165 (78.2)	68 (63)	X ² =0.340	0.038
No	45 (21.9)	40 (37)		

Table 2. General Clinical Characteristics of Newborns

	Turkish Newborn (n: 211) Mean±SD n (%)	Migrant Newborn (n: 108) Mean±SD n (%)	t test	p value
Birth weight (gr)	3058.30±579.77	3250.46±686.92	0.865	0.353
Birth length (cm)	49.47±2.75	49.59±5.39	1.271	0.260
Birth head circumference (cm)	34.33±1.98	33.83±3.71	0.263	0.608
Gestational week	37.95±2.05	38.06±4.18	1.542	0.748
Apgar 1st minute	7.73±0.82	7.48±1.20	9.795	0.002
Apgar 5th minute	8.65±0.850	8.62±1.08	0.533	0.466
Duration of stay in intensive care (day)	1.42±4.18	0.99±3.52	1.469	0.226
Preductal SpO ₂	96.79±0.89	97.06±0.93	1.321	0.68
Postductal SpO ₂	97.40±0.87	97.45±0.83	0.928	0.42
Cord blood gas				
Ph	7.30±0.07	7.29±0.08	1.421	0.69
HCO ₃	22.58±2.11	22.33±2.09	0.917	0.34
HCO ₂	48.23±11.28	46.91±8.52	2.087	0.68
Base gap	-4.19±1.30	-4.18±1.09	1.543	0.60

* SD: Standard Deviation

Table 3. Complications of pregnancy in mothers and reasons for hospitalization of newborns

Complication of pregnancy	Turkish newborn (n: 211) Mean±SD n (%)	Migrant newborn (n: 108) Mean±SD n (%)
PROM (>18 hours)	6 (2.9)	5 (4.6)
Gestational Diabetes	9 (4.3)	6 (5.6)
TFT Disorder	4 (1.9)	0 (0)
Preeclampsia	5 (2.4)	5 (4.6)
Epilepsy	1 (0.5)	0 (0)
Urinary tract infection	6 (2.9)	3 (2.8)
Cord prolapsus	4 (1.9)	8 (7.4)
Anhydramnios (oli-poly)	2 (1.0)	3 (2.8)
Anemia requiring blood transfusion	1 (0.5)	2 (1.9)
Viral infection (chicken pox)	0 (0)	1 (0.9)
Reason for Neonatal Intensive Care Unit hospitalization	Turkish newborn (n: 211) Mean±SD n (%)	Migrant newborn (n: 108) Mean±SD n (%)
HCV positive	0 (0)	1 (0.9)
Meconium Aspiration Syndrome	2 (1.0)	1 (0.9)
Diabetic Mother's Baby	4 (1.9)	0 (0)
Intrauterine growth retardation	3 (1.4)	2 (1.9)
Prematurity (<37 weeks) + RDS	17 (8.1)	8 (7.4)
Hyperbilirubinemia	2 (0.9)	8 (7.4)
Early Sepsis	4 (1.9)	5 (4.6)
Exitus	0 (0)	1 (0.9)
Term infant respiratory problems	4 (1.9)	2 (1.9)
Congenital Anomaly	Turkish newborn (n: 211) Mean±SD n (%)	Migrant newborn (n: 108) Mean±SD n (%)
Down Syndrome	1 (0.5)	1 (0.9)
Urogenital anomalis	3 (1.4)	5 (4.6)
Congenital heart anomaly	4 (1.9)	2 (1.9)
Extremite anomalis	2 (0.9)	2 (1.9)
Microcephaly	1 (0.5)	0 (0)

Discussion

In our country, especially children brought by immigrants in recent years and babies born as a result of their pregnancies also cause new demographics in the field of newborn and child health. This is particularly noticeable in large cities, especially in places with high migration rates. In our study, the migrant babies born in our unit were identified as 5.92% and 94.08% as Turkish citizens. In a study conducted in our country, the migrant birth rate was found to be 1.2% [8]. In another study, migrant babies born were identified as 33% and Turkish citizens as 67% [9]. Although our hospital is not in an area where migrants live heavily, birth rates were higher than the general population.

In our country, pregnancy monitoring files are kept in family health centers and pregnancy monitoring was evaluated in a total of 4 control periods, including first trimester and last trimester [10]. According to the Turkey Demographic and Health Survey (TDHS) 2018 data, Syrian migrant women received enough numbers (4+) of prenatal care in 64% of births [11]. The follow-up rate of migrant pregnancies giving birth in our hospital was found to be significantly lower than those of Turkish pregnancies

during the prenatal period. It is thought this may be related to reasons such as following migrant pregnancies at different times, not applying for follow-up, or migrant mothers who do not have enough information. Similar results are seen in Hamilcikan and Can's study [9].

According to the TDHS 2018 data, the cesarean delivery rate in our country was 52%. In 38% of cesarean births, the decision of the caesarean section was planned before the labor pains began [11]. In our study, the rate of cesarean delivery in Turkish infants was significantly higher than in migrant newborns. It was determined that most migrant newborns were born with spontaneous vaginal delivery. Many studies from Lebanon, Jordan, and Turkey have reported higher cesarean rates for Syrian migrants than their citizens, but unlike them, our study found that Turkish newborns were born by cesarean section at a higher rate [8,12,13]. Higher medico-legal anxiety about Turkish pregnancies may be one of the reasons for this condition. It also supports that having previous births by cesarean section is the most common cause of another cesarean. Another reason may be the opposition to the cesarean section, which exists especially in some migrant groups and is caused by aesthetic anxiety. These data support that the most

important point of reducing cesarean section rates is to reduce primary cesarean section rates. A similar study was conducted by Demirci et al [14] and analyzed the birth characteristics of Syrian asylum seekers and Turkish citizens in Turkey in 2015. They reported higher cesarean delivery rates for Turkish citizens and higher GDM (Gestational diabetes mellitus) rates for Turkish women compared to migrants. Similarly, GDM is seen more in Turkish mothers in our study. However, we found that there was no statistical difference between Turkish and migrant babies in terms of pregnancy week. Similar results are seen in Hamilcikan and Can's study [9].

In our study, a significant proportion of Turkish and migrant newborns admitted to the neonatal unit were premature babies. The incidence of premature babies in migratory newborns was reported as 3-7% [15]. In another study, it was stated that the proportion of migrant preterm babies was 2.9% and that this ratio was similar between Turkish and migrant babies [9].

In the first examination in the delivery room the 1 and 5-minute Apgar score, height, weight and head circumference measurements and evaluation based on percentile curves, as well as baby's vital signs are recorded [16]. In our unit, after the birth of babies, 1 and 5-minute Apgar scores were evaluated, anthropometric measurements were made, and all newborns' cord blood gas values were checked. In our study, it was observed that there is no difference in weight, height, and length of head circumference in Turkish and migrant newborns. Similar results are seen in Hamilcikan and Can's study [9]. It was thought that the insignificant difference between babies' weeks of gestation and birth weight, head circumference and height could indicate that only environmental factors were not effective in neonatal growth and development.

In our study, after the birth of Turkish and migrant newborns, significant differences were found between the 1-minute Apgar scores. The American Academy of Pediatrics (AAP) Fetus and Newborn Committee recommends taking blood samples from the umbilical cord and assessing blood gas for asphyxia [17]. There was no significant difference in blood gas values in Turkish and migrant newborns. Similar studies show the same results [9].

The AAP has specified the necessity for all newborns to have a critical congenital heart disease screening test after completing the first 24 hours. The diagnosis of newborns with critical congenital heart disease in newborns can be made early with these tests. The protocol for this is based on the principle of monitoring preductal and post ductal oxygen saturation with a pulse oximeter [18]. In our study, it was determined that there was no significant difference between the screening of critical congenital heart disease routinely administered in Turkish and migrant newborns in our unit.

In neonatal monitoring units, physical examinations and laboratory tests, taking into account the pre-natal risk conditions of infants, are provided by admission to the neonatal intensive care unit with a short follow-up period or by the delivery of the baby to the mother. All newborns going through basic care services are guided by these monitoring principles [16]. One study state that the perinatal outcomes of migrants in different centers are poor [11]. In another study, there was no increase in perinatal pathology

despite poor antenatal monitoring in migrants [10]. In our study, it was determined that migrant infants were admitted to more neonatal intensive care units, but there was no significant difference between them and Turkish newborns. It can be thought that this may be related to the lack of prenatal follow-up of migrant mothers or to being irregular. According to the clinical features of NICU, premature rupture of membranes, prematurity + RDS, meconium in the amniotic fluid, early sepsis suspicion and hyperbilirubinemia were followed and admitted. When the risk factors for entry into the neonatal intensive care unit were evaluated, it was observed that fetal anomalies were more common in migratory newborns. This can be explained by the fact that pregnancy follow-up of Turkish pregnant women is more frequent and the necessary screening tests were carried out and the babies were brought in time for control follow-up during the newborn period.

Breast-feeding have advanced importance both in terms of maternal and infant health. It is a miracle that it is offered to the baby because it is the most ideal, cheapest and best quality nutrition item. The World Health Organization and many health organizations reported that the first 6 months of breast-feeding alone is the most ideal and healthy way of eating for the baby. Despite the numerous benefits of breastfeeding and breast milk intake, there are still serious deficiencies in both first day breast milk intake and first 6 months breast milk intake worldwide. Many factors such as culture, religion, climate is involved in this rate. Postpartum breastfeeding rates are between 20-30%, especially in Arab countries, while in Central Asian countries Afghanistan and Iran this rate is 50-55% [21]. According to 2018 TDHS data, the rates of breastfeeding in our country within the first 24 hours were 86% [11], this rate was 80.6% in Kaya and Pirincci's [23] study and in the study of Calik et al. [24], it was 78.3%. In our study, the rate of breastfeeding in the first 24 hours was 78.2% in Turkish infants and 63% in migrants. It was thought that although the normal delivery rate was higher, the low rate of breast-feeding in migrant mothers was more likely due to the fact that migrant mothers were from Arab countries and the lack of breast-feeding desire for aesthetic anxiety.

Again, intensive care hospitalizations (7.4%) due to hyperbilirubinemia were significantly higher in migratory newborns. Hyperbilirubinemia due to lack of breast milk was found to be the most common cause. This significant difference between the groups of the breast-feeding rate and therefore the baby's nutrition due to insufficient hyperbilirubinemia may be revealed.

Conclusion and Recommendations

In our study, there was no significant difference between the two groups, although migratory newborns had higher NICU hospitalization. There were also statistically significant differences, although similar characteristics were more common in the overall evaluation. The fact that there are more similar characteristics can be interpreted as the result of the quality of health services provided to migrants by the Republic of Turkey. However, because antenatal follow-up rates were low in-migrant mothers, it was determined that it was necessary to regulate communication and language-related studies to improve the prenatal care of migrant women and to increase the education to mothers accompanied by

interpreters in pregnant schools. As the number of migrants from Syria and especially from Asia and the Arabian Peninsula has increased both in Turkey and worldwide, such work is necessary to provide migrants with the care and health care they need during the transition to normal life in a new country. The development of antenatal care services for migrants can be achieved through the more active operation of pregnant schools and more regular detection and monitoring of migrant pregnant women. During the postpartum period, professional lactation training especially the necessary information about breast milk and breastfeeding should be communicated to the migrant mothers through interpreters.

As a result, the rate of newborns and hospital admissions are increasing due to the increase in the number of migrants. Improving pre-and post-natal care rates, reducing hospital admissions for migrants, and ensuring a healthier and adequate diet by increasing breastfeeding rates in the ensuing process can help reduce death and disease rates for these babies. Professional support for improving breastfeeding rates of migrant mothers, understanding the importance of breast milk and eliminating aesthetic concerns should not be denied. A professional health configuration will reduce possible hospitalizations, regular patient follow-up will be provided, and will reduce unnecessary formula use, so besides causing a significant increase in health quality for our country, significant savings will be achieved in health expenses.

Conflict of interests

The authors declare that they have no conflict of interest.

Financial Disclosure

All authors declare no financial support.

Ethical approval

Permission was obtained from Giresun University Medical Faculty Clinical Research Ethics Committee (09.01.2020/09) for the study. Besides, official permission was obtained from the Giresun Provincial Directorate of Health to carry out the work.

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