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Comparison of perinatal and neonatal results of grand multiparous refugee women under 35 years of age

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Abstract

Objective: Grand multiparity and being a refugee have been adversely associated with perinatal and neonatal outcomes. In this study, we aimed to compare the pregnancy outcomes of both grand multiparous and refugee pregnant women aged 18–34 years.

Methods: In this retrospective study, birth data, electronic records, and patient files of refugee women under 35 years of age were scanned. The participants were divided into three groups according to parity: Group I, primiparous; Group II, multiparous; and Group III, grand multiparous. After the patients were divided into groups, the sample groups were randomized into 74 people. The antenatal and neonatal outcomes of the pregnant women included in the groups were recorded. All groups were compared among themselves.

Results: There was a significant difference between the groups in terms of age, gravida, and parity ($p<0.05$). The number of abortions was significant when Groups I and II were compared ($p<0.004$). Estimated blood loss volume (EBLV) was significantly higher in primiparous pregnancies compared with multiparous pregnancies ($p=0.007$). The amount of bleeding over 1000 cc was significantly higher in primiparas than in grand multiparas ($p=0.039$).

Conclusion: This study found that grand multiparous refugee pregnancies had similar perinatal and neonatal complication rates to multiparous and nulliparous pregnancies and that grand multiparity alone was not a risk factor. The findings indicate that most of the complications associated with grand multiparity are associated with advanced age, low socioeconomic status, and inadequate antenatal care.

Keywords: Grand multiparity, refugee, maternal age, maternal complications, neonatal complications

Introduction

"Grand multiparity" is typically defined as five or more parities.[1] While some studies have reported that grand multiparity is associated with a significantly higher risk of iron deficiency anemia, diabetes mellitus, antepartum hemorrhage, malpresentation, cesarean section rate, postpartum hemorrhage (PPH), placenta previa, lower APGAR score, and higher perinatal mortality[2, 3], some studies have reported that the rate of antepartum complications seen in grand multiparous patients was not different from other multiparous patients.[4]

Refugee pregnant women constitute a higher-risk population with increasing rates of adverse obstetric and perinatal outcomes. It is known that antenatal complications, such as preterm birth, low birth weight, increased cesarean rates, bleeding during delivery, and anemia, increase in refugees.[5, 6]

Many of the complications associated with grand multiparity have also been independently associated with advanced maternal age.[7] The current study was conducted to evaluate the pregnancy outcomes of Syrian refugees under the age of 35 and to evaluate both immigrants, who comprise important public health problems, and grand multiparas under 35 years of age.

Methods

This retrospective study was carried out at the Adıyaman University Faculty of Medicine Education Research Hospital, a tertiary care institution. After obtaining approval from the local ethics committee of Adıyaman University (Decision Number: 2022/7-34), birth data,

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electronic records, and patient files of refugee women under 35 years of age were scanned from January 2021 to December 2021. There were 128 primiparous (single births), 461 multiparous (2–4 births), and 74 grand multiparous (5 or more births) women. The participants were divided into three groups according to parity: Group I, primiparous; Group II, multiparous; and Group III, grand multiparous. Once the patients were divided into groups according to their records, the sample groups were randomly matched using the Statistical Package for the Social Sciences (SPSS) "random sample" feature to include 74 women.

Refugee women over the age of 18, under the age of 35, with a single pregnancy, and who gave birth at 20 weeks, or more were included in the study. Women younger than 18 years old or older than 35 years old, women who did not give birth over 20 weeks, women who had multiple pregnancies, and women with missing data were excluded from the study.

The women included in the study were screened from electronic records and patient files in terms of their age, gravida, parity, number of abortions, gestational week, delivery type, 3rd and 4th degree perineal laceration, thyroid-stimulating hormone (TSH), pre- and postnatal Hb and Hct values, postpartum hysterectomy history, hospitalization times, blood transfusion history, and history of hypertensive diseases and diabetes of pregnancy. In addition, fetal congenital anomaly, birth APGAR, whether it was followed in the neonatal intensive care unit (NICU), intrauterine fetal death history, and birth weight data were also recorded.

Pregestational diabetes mellitus and gestational diabetes mellitus (GDM) were diagnosed according to the criteria of the American Diabetes Association.[8] The diagnosis of hypertensive diseases during pregnancy was made according to the recent American College of Obstetricians and Gynecologists bulletin.[9] Anemia was diagnosed as a hemoglobin value of less than 11 g/dL.[10] The FGR diagnosis was determined according to the Delphi criteria.[11] Fetal death was defined as the death of a fetus over 20 weeks. APGAR scores in the 1st and 5th minutes were recorded. Information about each newborn was recorded from delivery until discharge.

Evaluation of peripartum hemorrhage

This included the evaluation of BMI, gestational age, parity, obstetric history, estimated blood loss volume (EBLV), postpartum hemoglobin value, and whether or not a blood transfusion was received. If more than one complete blood test was performed, the values closest to the time of delivery were recorded. Excessive blood loss was defined as an estimated blood loss of 1000 mL or more. In the clinic where the study was conducted, control hemoglobin values were measured in all women approximately 24 h after delivery. EBLV was evaluated using a method previously described by Stafford et al. In this method, the EBLV is calculated using the maternal height, maternal weight, and prepartum and postpartum Hct values of the pregnant women.[12] Blood transfusion indications were set according to the patient's vital signs, peripartum EBLV, and intrapartum hemoglobin values, or a postpartum Hb value below 7 g/dL. Patients who received a blood transfusion during delivery or up to 24 h postpartum were recorded.

Statistical analysis

All data collected for statistical analysis were analyzed using SPSS version 22 (SPSS Inc., Chicago, IL). Whether the data fit the normal distribution was determined using the Kolmogorov–Smirnov and Shapiro–Milk tests. Data between groups were compared with the Kruskal–Wallis test or ANOVA test according to whether the data showed normal distributions. Categorical data were evaluated with the chi-square test. A p value below 0.05 was considered statistically significant.

The G * Power 3.1 program (Erdfelder, Faul ve Buchner, Düsseldorf, Germany) was used for post hoc power analysis. The α error probability, effect size, and power of the study were 0.05, 0.3, and 0.95, respectively. The total required sample size was calculated as 172.

Results

The study was conducted with a total of 219 cases. One grand multiparous and 2 primiparous cases were excluded because datas were missing. 72 cases in group I, 74 cases in group II, 73 cases in group III. The results showed significant differences between the groups in terms of age, gravida, and parity (p<0.05).The number of abortions was significant when Groups I and II were compared (p<0.004), as shown in Table 1.

Table 1. Demographic characteristics of groups

	Group I, primiparous (n=72)	Group II multiparous (n=74)	Group III Grand multiparous (n=73)	P value
Age (year)	21.9±4.24	25.3±3.95	29.2±3.4	<0.05
Gravida	1(1.1)	3(3.4)	6(5.7)	<0.05
Parite	-	3(2.4)	5(5.6)	<0.05
Abortus	0(0.0)	0(0.1)	0(0.1)	0.004*
Gestasional age (week)	38.9±2.3	38.8±1.4	38.6±2.5	0.757

Data presented as mean ± standart deviasyon, number(%) or median (25th-75th percentiles)
One-Way Anovaor Kruskal Wallis test was performed. Post hoc analyzes we reperformed using the Mann Whitney U test with Bonferroni correction. Significant p values are shown in bold.
*In post hoc analysis gruop I vs Group 2 p=0.004; Group 1 vs grup 3 p=NS; Group 2 vs Group 3 p=NS

When compared in terms of complications of pregnancy and labor, EBLV was significantly higher in primiparous pregnancies than in multiparous pregnancies (p=0.007). The amount of bleeding over 1000 cc was significantly higher in primiparas compared with grand multiparas (p=0.039), as shown in Table 2.

Table 2. Complications of pregnancy and labor

	Group I, primiparous (n=72)	Group II multiparous (n=74)	Group III Grand multiparous (n=73)	P value
GDM	2(2.8)	7(9.5)	3(4.1)	0.170
Pre-GDM	1(1.4)	0(0.0)	1(1.4)	0.884
GHT	2(2.8)	2(2.7)	3(4.1)	0.863
Pre-eclampsia	2(2.8)	2(2.7)	4(5.5)	0.595
Vaginal birth	59(81.9)	53(71.6)	57(78.1)	0.323
CS	13(18.1)	21(28.4)	16(21.9)	
3rd and 4th degree perineal laceration	1(1.4)	3(4.1)	1(1.4)	0.456
Premature delivery	4(5.6)	6(8.1)	10(13.7)	0.219
Anemia	15(20.8)	21(28.4)	16(21.9)	0.509
TSH	3.2±1.7	2.9±1.5	3.1±1.5	0.634
Pre-Hb	12.2±1.7	11.9±1.8	11.9±1.5	0.520
Pre-Hct	36.3±4.4	35.7±4.3	35.6±3.8	0.545
Post-Hb	10.9±1.8	11.3±1.8	11.1±1.5	0.392
Post-Hct	32.5±4.9	33.3±4.4	32.9±4.2	0.528
EBLV	443 (239-721)	245 (72-555)	369 (132-616)	0.09**
Bleeding over 1000 cc	10(13.9)	6(8.1)	2(2.7)	0.050***
Blood transfusion	7(9.7)	4(5.4)	6(8.2)	0.612
Acute kidney failure	0(0.0)	1(1.4)	0(0.0)	0.374
Hysterectomy	0(0.0)	0(0.0)	1(1.4)	0.364
Hospital stay	1.3±0.7	1.4±0.5	1.3±0.5	0.667
Congenital anomalies	1(1.4)	2(2.7)	2(2.8)	0.821

GDM: Gestational diabetes mellitus; Pre-GDM: Pregestational diabetes mellitus; GHT: Gestational Hypertension; CS: Cesarean section; EBLV:Estimated blood loss volume; TSH: Thyroid-stimulating hormone; Pre-Hb: Prenatal Hb value;
Pre-Hct: prenatal Hctvalue; Post-Hb: Postnatal Hb value; Post-Hct: Postnatal Hct value.
Data presented as mean ± standart deviasyon, number(%) or median (25th-75th percentiles)
One-WayAnovaor Kruskal Wallis test was performed. Post hoc analyzes were performed using the Mann Whitney U test with Bonferroni correction. Significant p values are shown in bold.
**Posthoc analizde group I vs Group 2 p=0.007; Group 1 vs grup 3 p=NS; Group 2 vsGroup 3 p=NS
NS, Non- significance
*** Posthoc analizde group I vsGroup 2 p=NS;Group 1 vs grup 3 p=0.039; Group 2 vsGroup 3 p=NS
NS, Non- significance

There was no significant difference between the groups in terms of APGAR score, birth weight, NICU, and IUEF (Table 3).

Table 3. Comparison of Neonatal Complications of groups

	Group I Primiparous (n=72)	Group II multiparous (n=74)	Group III Grandmultiparous (n=73)	P value
APGAR Score< 7 at five minutes	8.7±1.13	8.9±0.2	8.58±1.5	0.133
Birth weight	3073.2±479.4	3082.5±404.3	3191.6±555.5	0.261
NICU	7(9.7)	12(16.2)	17(23.3)	0.08
Fetal death	1(1.4)	0(0.0)	1(1.4)	0.597

Data presented as mean ± standart deviasyon or number(%)
NICU: Neonatal intensive care unit

Discussion

Syrian refugees under 35 years of age were included in this study, as most of the complications seen in grand multiparous pregnancies are associated with advanced maternal age. Although there was a significant difference in age, gravida, and parity between the groups, we think that the age difference between the groups would not affect pregnancy complications, as all cases were under 35 years old. The fact that the number of abortions is higher in the multiparous group than in the primiparous group can be explained by the increase in the number of abortions as parity increases.

Grand multiparity is still considered a risk factor in developing countries with low socioeconomic populations and inadequate healthcare.[13, 14] In addition, when women migrate from conflict areas with limited economic resources, are unable to adequately understand the language and culture of the host country, and face numerous barriers to accessing appropriate health services, they can be deprived of adequate pregnancy, childbirth, and postpartum services.[15] This is one of the reasons why the rates of perinatal and neonatal complications appear to be higher in refugee women.[16] Turkey has been hosting approximately 3.6 million Syrian refugees since the Syrian war.[17] Refugees in Turkey have access to basic health services (including monitoring of infants, children, and pregnant women; routine vaccination for children; reproductive health services; and community health counseling) and benefit from emergency care units and primary, secondary, and tertiary health centers free of charge.[18] In a study of Turkish and Syrian refugee women, Gungor et al. found that obstetric complications were observed more frequently in Syrian refugees, but no statistical difference

was found; furthermore, antenatal iron and vitamin supplementation in this population was observed to be similar to that of Turkish women.[19] This confirms that Syrian refugees receive close obstetric care with Turkish women. In the current study, no significant difference was observed between the groups in terms of birth weight, GHT, GDM, preeclampsia, anemia, and IUEF.

Many of the complications associated with grand multiparity have also been independently associated with advanced maternal age.[7] A study conducted on grand multiparous women found that after adjusting for age, they had similar maternal and neonatal complication risks compared with other parity groups.[20] In 2005, a study found that the risks of intrapartum and neonatal complications did not increase in grand multiparous patients aged 18–34 years.[21] In the present study, no significant difference was found between the groups in terms of GHT, GDM, and preeclampsia.

It is generally believed that increased parity results in uterine atony, leading to PPH.[22] ACOG defines PPH as cumulative bleeding greater than 1000 mL.[23] Alsammani et al. reported that the incidence of PPH was higher in young grand multiparas than in young nulliparas.[24] In the current study, it was determined that the amount of bleeding was higher in primiparas, and the amount of PPH decreased as parity increased. In addition, EBLV was more common in primiparous than in multiparous patients. This supports studies showing that grand multipara is not associated with PPH. The reason why there was more bleeding in primiparous patients in our study is that we used the Stafford method. This method does not take blood transfusions into account. This is a limitation of the study. There was no difference in transfusion rates between the groups.

Alsammani et al. also reported that low APGAR scores, low birth weight, and NICU admission rates were higher in young grand multiparous patients.[24] APGAR scores were also found to be similar between the groups in the present study. A pediatrician is actively present in our clinic during delivery. Thus, we believe that NICU acceptance rates were similar between the groups as a result of the effective use of NRP.

The strength of this work is that it is the only study in the literature to collect information regarding the perinatal and neonatal outcomes of refugees comprising young, grand multiparous pregnant women. However, one limitation of this study is that as a retrospective study, the data we obtained are limited to what we could find in the patient records. Another limitation is that other factors affecting pregnancy outcomes (e.g., interval between pregnancies, nutritional status, and psychosocial status of the woman) are not disclosed. A third limitation of the study is that patients who received a transfusion were not included in the Stafford method of calculating the number of scans.

Conclusion

This study found that grand multiparous refugee pregnancies had similar perinatal and neonatal complication rates with multiparous and nulliparous pregnancies and that grand multiparity alone was not a risk factor. The findings indicate that most of the complications associated with grand multiparity are linked to advanced age, low socioeconomic status, and inadequate antenatal care.

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