

Factors That Affect Perinatal Outcomes of the Second Pregnancy of Adolescents



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ABSTRACT

Study Objective: We assessed factors that might affect perinatal outcomes in second pregnancies in adolescents.

Design, Setting, Participants, Interventions, Main Outcome Measures: This longitudinal retrospective study was carried out on 66 adolescents who experienced 2 deliveries during their adolescence. Data were collected for the first and second pregnancies. Odds ratios (ORs) and 95% confidence intervals (CIs) for adverse perinatal outcomes in the second pregnancy were calculated using a logistic regression model and SPSS software (version 17.0 for Windows; SPSS Inc, Chicago, IL). A *P* value < .05 was considered to indicate statistical significance.

Results: Body mass index, number of antenatal care visits, weight gain during pregnancy, incidence of anemia, smoking status, gestational week at delivery, cesarean section rate, and birth weight were similar between the first and second pregnancies of these adolescents. Neonatal intensive care unit admission rate, preeclampsia rate, low neonatal birth weight rate, and 5-minute Apgar scores <7 were significantly higher in the first than in the second pregnancy (*P* < .001). Age of 16 years or younger at the time of first pregnancy (OR = 1.5; 95% CI, 0.9-2.1; *P* < .01), less than an 18-month interval between births (OR = 1.4; 95% CI, 0.2-1.7; *P* < .04), presence of gestational complications in the first pregnancy (OR = 1.9; 95% CI, 1.0-3.4; *P* < .01), and the presence of perinatal complications in the first pregnancy (OR = 1.3; 95% CI, 1.0-1.9; *P* < .01) were found to be significant indicators for adverse neonatal outcomes in second pregnancies of adolescents.

Conclusion: We found that the second pregnancies of adolescents were associated with fewer adverse perinatal outcomes than were their first pregnancies. However, some factors regarding the presence of perinatal complications in the first pregnancy, such as maternal age of 16 years or younger at the time of the first pregnancy and interval between first and second pregnancy of less than 18 months, were found to increase the risk of adverse perinatal outcomes for the second births.

Key Words: Adolescent, Multiparous adolescents, Adolescent pregnancy, Perinatal outcomes, Repeated pregnancy

Introduction

Adolescent pregnancy is a serious public health problem. Most of these pregnancies are seen in women of lower socioeconomic status with limited education who mostly live in developing countries.¹ They are associated with an increased incidence of instrumental deliveries and cesarean sections, and complications such as low birth weight, preterm labor, hypertensive disorders, and intrauterine growth restriction.² In a World Health Organization study, a fourfold increase in maternal death rate and 50% more neonatal deaths were found in mothers younger than 16 years of age compared with mothers in their 20s.³ Additionally, developmental and behavioral problems were found to be more common in the children of adolescent mothers.⁴

Several studies have examined the perinatal outcomes of first pregnancies in adolescents; however, few studies have considered the perinatal outcomes of second pregnancies in

this age group. Thus, we undertook this study to compare perinatal outcomes of first and second pregnancies and also to assess potential risk factors for adverse perinatal outcomes of second pregnancies in adolescents.

Materials and Methods

This longitudinal retrospective study was carried out on women aged 19 years or younger who had experienced 2 deliveries at Zekai Tahir Burak Women's Health Education and Research Hospital between January 1, 2010, and January 1, 2014. The study was conducted after approval by the hospital institutional review board.

During this study period, a total of 525 adolescents delivered at our hospital; of these, 66 adolescents who delivered first and second infants (66 of 525) at our hospital during adolescence were enrolled in this study. First, adolescents who delivered twice at our hospital during adolescence were identified from electronic medical records. Then, data including gestational weeks at the delivery, mode of delivery, birth weight, preterm delivery, pregnancy-related complications, Apgar scores at 5 minutes, birth weight, and neonatal intensive care unit (NICU) admissions were collected from the medical files of patients. In a subsequent hospitalization at our hospital, a

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patient file was added to the previous medical files. Thus, we are confident that we did not miss any patients who delivered at our hospital. However, adolescents who delivered their first infant might have delivered a second infant at another hospital. Consequently, the true number of repeat adolescent pregnancies was likely greater than is reported herein.

In our country, women can obtain adequate antenatal care during their pregnancy because of the free health care at state hospitals, which includes all medical, surgical, drug, and dental treatment during pregnancy. Also the most used contraceptive methods (intrauterine device, birth control pills, and condoms) are free in state hospitals. The World Health Organization identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19 years. A gestational diabetes mellitus diagnosis was made if 2 or more glucose values were higher than the defined cutoffs during a 100 g, 3-hour oral glucose tolerance test.⁵ Preeclampsia was defined as de novo hypertension (>140/90 mm Hg) that developed after 20 weeks of gestation in a woman with previously normal blood pressure with coexisting significant proteinuria (>0.3 g in a 24-hour urine specimen).⁶ Delivery before 37 gestational weeks of pregnancy was deemed preterm delivery. Maternal age was defined as the age of the mother in completed years at the time of delivery. The period between the delivery of the previous infant and last menstrual day of the second pregnancy was calculated as the interval between the pregnancies. Adverse perinatal outcomes were defined as 1 of the following conditions: low birth weight (<2500 g), 5-minute Apgar score <7, or NICU admission. At 6 weeks after delivery, the adolescents were offered a meeting at our family planning outpatient clinic. No special contraception protocol was offered; contraception was individualized for each adolescent.

Data were analyzed using SPSS software (version 17.0 for Windows; SPSS Inc, Chicago, IL). Continuous variables were compared with paired *t* tests. Categorical variables were

compared with a 2-tailed χ^2 test (McNemar) or Fisher exact test, as appropriate. Odds ratios (ORs) and 95% confidence intervals (CIs) for poor perinatal outcomes in a second pregnancy were calculated using a logistic regression model. A *P* value of < .05 was considered to indicate statistical significance.

Results

In total, 525 adolescents delivered at our hospital, and 66 of these who delivered twice during their adolescent periods were enrolled in this study. Body mass index, number of antenatal care visits, weight gain during pregnancy, anemia rate, smoking status, gestational week at delivery, cesarean rate, and birth weight were similar between the first and second deliveries in these adolescents. However, NICU admission rate, number of neonates with low birth weight (birth weight <2500 g), and the number of neonates with 5-minute Apgar scores <7 was significantly higher in the first pregnancy than in the second pregnancy of the adolescents. No statistically significant difference was found between the first and second pregnancies in terms of gestational diabetes or preterm labor rates (Table 1). We found that all of the adolescent participants had dropped out of middle school or high school after their first pregnancies.

Age of 16 years or younger at first pregnancy (OR = 1.5; 95% CI, 0.9–2.1), less than an 18-month interval between pregnancies (OR = 1.4; 95% CI, 0.2–1.7), gestational complication in the first pregnancy (OR = 1.9; 95% CI, 1.0–3.4), and perinatal complications in the first pregnancy (OR = 1.3; 95% CI, 1.0–1.9) were significant indicators for adverse neonatal outcomes in the second adolescent pregnancies (Table 2).

Discussion

NICU admission rate, number of neonates with low birth weight (birth weight <2500 g), and number of neonates with 5-minute Apgar scores less than 7 were found to be

Table 1
Comparison of the First and Second Pregnancies of Adolescents

Characteristic	First Pregnancy (n = 66)	Second Pregnancy (n = 66)	<i>P</i>
Maternal age, years	17 (16–19)	19 (17–19)	
Maternal BMI	23 (19–35)	25 (20–37)	.672
Number of antenatal care visits	3 (1–7)	4 (3–7)	.534
Smoking	10 (15.2)	14 (21.2)	.407
Weight gain during pregnancy, kg	12.4 ± 5.2	11.5 ± 5.8	.462
Anemia*	26 (39.4)	10 (15.2)	.027
Gestational weeks at the time of delivery	38 (30–41)	39 (31–40)	.553
Gestational complications	26 (39.4)	14 (21.2)	.023
Gestational DM	2 (3)	4 (6.1)	1
Preeclampsia	10 (15.2)	4 (6.1)	.109
Preterm labor	14 (21.2)	6 (9.1)	.39
Cesarean delivery	12 (18.2)	14 (21.2)	.757
Birth weight, g	2950 (1250–4470)	3270 (1840–3900)	.086
Neonatal complications	28 (42.4)	12 (9.1)	.002
Birth weight less than 2500 g	16 (24.2)	8 (6.1)	.004
Five-minute Apgar score less than 7	6 (9.1)	— (0)	.031
NICU admission	12 (18.2)	4 (3.0)	.006

BMI, body mass index; DM, diabetes mellitus; NICU, neonatal intensive care unit
Values are given as mean ± SD, median (minimum–maximum) and n (%).

Statistical significance was set at *P* < .05.

Statistically significant *P* values were shown in bold.

* Anemia was defined as hemoglobin less than 10 mg/dL.

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