



Evaluation of maternal and fetal outcomes of adolescent pregnancy in Hakkari province

Adolescent pregnancy in Hakkâri

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Abstract

Aim: In this study, we aimed to compare and discuss maternal and fetal problems in adolescent and non-adolescent pregnancies encountered in the Hakkari State Hospital. **Material and Method:** We retrospectively evaluated 15-19 years old (55 patients) and 20-25 years old (55 patients) patients who gave birth between June 2016 and June 2017 in Hakkari State Hospital Obstetrics and Gynecology Clinic. Age, parity, blood pressure, pulse, gestational week, delivery type, birth complications, cesarean indications, maternal hemoglobin (HB), hematocrit (HTC) and platelet (PLT) levels, preeclampsia and preterm delivery at the birth were recorded. Oligohydramnios, fetal weight, and presence of fetal anomaly were recorded during pregnancy. **Results:** The total number of births between June 2016 and June 2017 in our clinic was 1473. Of these, 56 (3.8%) were in the adolescent age group. Increase in the frequency of fetal anomaly, development of preeclampsia, number of low birth weight and a decrease in maternal hemogram and hematocrit values were found to be significantly higher. **Discussion:** Adolescent pregnancies display increased fetal and maternal perinatal risks. For this reason, they are evaluated in the group of high-risk pregnancies. In order to reduce the number of adolescent pregnancies and perinatal complications; adolescent pregnancies should be identified, and regular antenatal care should be taken, and it is necessary to improve poor environmental conditions.

Keywords

Adolescent; Pregnancy; Perinatal Results

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Introduction

Adolescence is the transition period from childhood to adulthood together with concomitant biological, psychological, and social changes of the individual. The World Health Organization (WHO) understands the adolescents to include persons aged 10-19, and adolescent pregnancy is generally used to mean the gestation of girls between these ages. Early-adolescence might be considered as the ages of 10-14, and late adolescence encompasses the latter part of the teenage years including the ages of 15 -19 [1].

According to WHO (2012) data, in developing countries, 30% of adolescent girls are under 19, and 14% of adolescent girls under 15 are married. Worldwide, sixteen million girls aged 15-19 and two million girls under 15 are giving birth each year. Today, one in five girls and one in three girls in underdeveloped areas give birth before reaching 19 years of age [2]. According to WHO data, approximately 70,000 adolescent pregnant women die each year due to complications related to pregnancy and birth [3]. In our country, according to 2008 data, 18.5% of the population constitutes the adolescent age group [4].

The frequency of adolescent pregnancies is influenced by many factors including familial and individual factors, as well as socio-cultural status and development level of the country. In developed countries, pre-marital sexual experiences and associated undesirable pregnancies are identified as the cases occurring in adolescence period, whereas in developing countries such as Turkey, early marriages, and early pregnancies can be seen in this period due to cultural structures and traditions [5]. Adolescent pregnancies are considered among the high-risk pregnancies and can cause significant social and health problems in terms of mother and baby [6]. Adolescent pregnancies are considered risky pregnancies. The risk of preeclampsia, maternal anemia, interventional birth, congenital fetal anomalies, low birth weight is increased, and the risk of abortion and preterm delivery is higher.

Our aim in this study is to compare the fetal and maternal outcomes of adolescent and non-adolescent pregnancies we have encountered in our hospital.

Material and Method

In the Hakkari State Hospital Obstetrics and Gynecology Clinic, 15-19 years old and 20-25 years old women who gave birth between June 2016 - June 2017 were retrospectively evaluated. In order to reduce the negative effect of increasing age and parity on maternal and fetal outcomes, patients at 20-25 years old and first pregnancies were set as the control group. Presence of 56 adolescents (15-19 years) and 59 non-adolescents (20-25 years) patients in this date range was determined. One adolescent patient and 4 non-adolescent patients were excluded from the study because they gave birth outside the hospital. Both groups were compared with postpartum complications, cesarean section rates, cesarean indications and complications encountered during the follow-up period. 55 adolescents between the ages of 15 and 19 and 55 non-adolescents between the ages of 20 and 25 were included in the study. The late adolescent group aged 15 - 19 were included in the study. Maternal age at birth, parity, blood pressure, pulse, gestational week, delivery type, birth complications, cesarean indications, maternal hemoglobin (HB), hematocrit (HTC) and platelet (PLT) levels, preeclampsia and preterm delivery were recorded.

Preeclampsia is a pregnancy complication specified by the presence of a systolic blood pressure more than or equal to 140 mm Hg or a diastolic blood pressure more than or equal to 90

mm Hg or higher. Besides to the blood pressure criteria, proteinuria of higher than or equal to 0.3 grams in a 24-hour urine specimen, a protein(mg/dL)/creatinine(mg/dL) ratio of 0.3 or greater, or a urine dipstick protein of 1+ (if a quantitative measurement is unavailable) is necessary to diagnose preeclampsia [7]. Preterm labor is also called premature labor characterized by the beginning of the labor prematurely before the 37th week of pregnancy and presence of uterine contractions of sufficient frequency and intensity to effect progressive effacement and dilation of the cervix prior to term gestation (between 20 and 37 wk) [8, 9]. Oligohydramnios is diagnosed when single deepest pocket (SDP) of less than 2 cm and amniotic fluid index (AFI) of less than 5 cm [10, 11]. Oligohydramnios, baby weight and presence of fetal anomaly were recorded during pregnancy follow-up, and the data were obtained from hospital records.

All data analyses were conducted in IBM SPSS Statistics 22 (IBM SPSS, Turkey) program. The fitness of the variables to a normal distribution was assessed by the Shapiro Wilks test, and the data were found to be closely fit to a normal distribution. Descriptive statistical methods (mean, standard deviation, frequency), as well as Student t-test, was used in the inter-group evaluations. Dependent Sample t-Test was used in the evaluation of input and output measurements. Chi-square test was used to evaluate qualitative data. Significance was evaluated at the level of $p < 0.05$.

Results

The total number of births between June 2016 and June 2017 was 1473 at our clinic. Of these, 56 (3.8%) were in the adolescent age group. The remaining 1417 was found to be in the non-adolescent group. A total of 115 patients with 56 adolescents (15-19 years) and 59 (20-25 years) were evaluated retrospectively. One patient in the adolescent group and four patients in the non-adolescent group were excluded from the study because they gave birth outside of the hospital. The average age of adolescents was 17.8 and was 22.6 for the control group. The average birth week was 37w+2 days in the adolescent group and 38w+2 days in the non-adolescent group. In the adolescent group, the number of applications to the antenatal care facility was found to be 2.7, and in the non-adolescent group, this number was found to be 4.5 (Table 1).

Average baby birth weight was statistically significantly lower

Table 1. Comparison of average age, antenatal appointment number and birth-week in adolescent and non-adolescent pregnancies

		Min-Max	Mean±SD
Age (year)	<19 age	15-19	17.8
	≥19 age	20-25	22.6
Antenatal appointment number	<19 age	1-6	2.7
	≥19 age	1-10	4.5
		n	%
Birth Week	<19 age	28-41	37.2
	≥19 age	30-41	38.2

in adolescents than in non-adolescent group ($p: 0.011$, $p < 0.05$). Normal birth rate in non-adolescents (83.9%) were significantly higher than in adolescents (61.8%) (Table 2), ($p: 0.016$, $p < 0.05$). CPD (Cephalopelvic disproportion), fetal distress, breech presentation, unprogressing labor, severe preeclampsia were more common in adolescent group cesarean indications. Cord arrival and abruptio placenta among the indications of adolescent patients with cesarean section in the adolescent group were not seen in the non-adolescent group.

Table 2. Comparison of birth weight and cesarean rates of adolescent and non-adolescent pregnancies

	Mean±SD	p		
		<19 age (n=55) n (%)	≥19 age (n=55) n (%)	
Birth Weight (g)	2904.36±511.04	3143.75±450.53	¹ 0.011*	
Delivery type	Vaginal	34 (%61.8)	46 (%83.9)	² 0.016*
	C/S	21 (%38.2)	9 (%16.1)	

¹Student t-Test²Chi-Square Test

*p<0.05 **p<0.01

Pregnancy complications such as preterm delivery, oligohydramnios, and preeclampsia were observed more frequently in the adolescent group, whereas meconium amnion was observed more frequently in the non-adolescent group. While ex-fetus was seen in the adolescent group one time due to the placental ablation; ex-fetus was not observed in the non-adolescent group. The congenital fetal anomaly was observed in 4 fetuses in the adolescent group, and this anomaly was observed in only 1 fetus in the non-adolescent group (Table 3).

Table 3. Comparison of adolescent and non-adolescent pregnancies according to cesarean indications and gestational complications

		p	
		<19 age (n=55) n (%)	≥19 age (n=55) n (%)
Cesarean indications	CPD	4 (%7.3)	2 (%3.6)
	Decollement	1 (%1.8)	-
	Fetal Distress	6 (%10.9)	2 (%3.6)
	Incomplete labor	3 (%5.5)	2 (%3.6)
	Cord Prolapsus	1 (%1.8)	-
	Breech	3 (%5.5)	1 (%1.8)
	Severe Preeclampsia	3 (%5.5)	1 (%1.8)
Gestational complications	Preterm birth	5 (%9.1)	1 (%1.8)
	EX fetus	1 (%1.8)	-
	Meconium amnion	1 (%1.8)	2 (%3.6)
	Oligohydramnios	2 (%3.6)	1 (%1.8)
	Preeclampsia	5 (%9.1)	2 (%3.6)
	Congenital anomaly	4 (%7.3)	1 (%1.8)

There was no statistically significant difference in average hemoglobin values between adolescents and non-adolescents when they first accepted to the hospital ($p > 0.05$). The mean hemoglobin level of the patients in the adolescent group was found to be significantly lower than the patients in the non-adolescent group when they leave the hospital ($p=0.001$; $p<0.01$). Decreases in the hemoglobin values of the adolescent patients

Table 4. Evaluation of preoperation and postoperation hemogram measurements in adolescent and non-adolescent pregnancies

	Mean±SD	p		
		<19 age (n=55) Mean±SD	≥19 age (n=55) Mean±SD	
Hb	Prenatal	11.74±1.42	12.18±1.30	0.091
	Postnatal	9.45±1.10	11.21±1.77	0.001**
	Difference	-2.29±0.75	-0.98±1.54	0.001**
	² p	0.001**	0.001**	
Hct	Prenatal	36.34±3.83	37.43±3.43	0.116
	Postnatal	29.06±4.02	33.88±4.57	0.001**
	Difference	-7.28±4.19	-3.55±2.85	0.001**
	² p	0.001**	0.001**	

¹Student t-Test²Paired Sampling t-Test

*p<0.05 **p<0.01

during their stay in the hospital were found to be significantly higher than the non-adolescent patients ($p=0.001$; $p < 0.01$).

Discussion

In our study, we aimed to compare the maternal and fetal outcomes of adolescents in Hakkari with non-adolescents. As a result of our study, we found increased maternal anemia, congenital fetal anomaly, preterm birth, preeclampsia, low birth weight and cesarean rates in adolescents.

The incidence of adolescent pregnancies in the world varies between 1% and 42% depending on the level of development and cultural differences [12]. In a study conducted by Ayyıldız et al. in Zonguldak, the incidence of adolescent pregnancy was found to be 3.7%, and it was found as to be 3.6% in Diyarbakır in a study conducted by Ağaçayak et al. [13, 14]. In our study, we found the incidence of adolescent pregnancy as 3.8%. This result shows that adolescent pregnancies in the Hakkari region are not very high and are compatible with the literature.

Adolescent pregnancies are considered as high-risk pregnancy according to non-adolescents. There is a risk of maternal anemia, preterm birth, preeclampsia and increased fetal congenital anomaly [15].

Some studies in the literature reported that the preoperation hemoglobin and hematocrit values in adolescent pregnancies are low and there was a more remarkable decrease in hemoglobin and hematocrit values in postpartum period [16, 17]. In our study, the decrease in hemoglobin and hematocrit values were higher in adolescents compatible to literature data, but there were no significant differences in the prenatal values, which was thought to be linked to the high level of hemoglobin values in high altitude residents.

There are only a few studies showing the relationship between adolescent gestations and congenital anomalies. Chen et al. reported a higher risk of central nervous system anomalies (anencephaly, spina bifida/meningocele, hydrocephalus/microcephaly) gastrointestinal system anomalies (omphalocele, gastroschisis) and musculoskeletal system anomalies (cleft lip/polydactyl, syndactyl) when they examine 5542861 nullipar pregnant women under 35 age [18]. Melekoğlu et al. reported that 16.3% of infants born from adolescent pregnancies and 5.9% of infants born from non-adolescents had a congenital anomaly and the incidence was significantly higher in the first group [12]. In the large-scale study of a total of 10,100 pregnant women including 357 adolescents, made by Canbaz et al. in our country, none of the central nervous system, musculoskeletal system and gastrointestinal system anomalies were found in adolescents [19]. In our study, fetal congenital anomalies were more common in the adolescent group as it was previously reported in the literature. There were spina bifida, hydrocephalus, meningomyelocele and gastroschisis among the congenital fetal anomalies. The more frequent occurrence of fetal anomalies in the adolescent group was thought to be linked to malnutrition, unbalanced diet, and folate deficiency.

Adolescents need more nutritional support because of the concomitant body and fetus growth [20, 21]. Therefore, nutritional deficiencies are seen more common in adolescents compared to non-adolescents. Accordingly, in the literature, the birth weight of adolescent pregnancies is lower than that of non-adolescent pregnancies. In our study, according to the literature, birth weight in adolescent pregnancies was lower than in non-adolescent group [22].

According to the International Society for Hypertension in Pregnancy (ISSHP), hypertension is defined as systolic ≥ 140 mmHg

and diastolic blood pressure ≥ 90 mmHg from the second half of pregnancy. Hypertensive diseases and preeclampsia are more frequent in adolescents than non-adolescents [23]. The incidence of preeclampsia in our study was higher in the adolescent group as similar to the reported in the literature.

In our study, no significant difference was observed between the average birth weeks of the adolescent and non-adolescent pregnancies. Studies in the literature suggest that there is a higher risk of preterm labor (<36 weeks + 6 days) in adolescent pregnancies [24]. In our study, preterm labor was more frequently observed in the adolescent group as it was reported previously.

The person in the adolescent period did not complete the developmental stage and was not able to reach full maturity on the basis of the skeletal system. For this reason, the rate of cesarean section and the interventional birth rate was higher in the literature [25]. In our study, cesarean ratios were significantly higher in the adolescent group than in the non-adolescent group, consistent with the literature. Interventional delivery was not observed in both groups.

In adolescent pregnancies, the number of applications for any health care provider was 2,7 before birth, whereas it was 4.5 for the non-adolescent group. Perinatal outcomes are not significantly different in pregnancies at 17 and over especially when adequate antenatal care is taken, and poor environmental conditions associated with adolescent pregnancies are corrected in comparison to pregnant women over 20 years of age [26]. Adolescent pregnancies cause undesired maternal and fetal, perinatal outcomes and are evaluated in the high-risk group pregnancies. In order to reduce this present risk, adolescent pregnancies should be identified, took under regular antenatal follow-up and poor environmental conditions should be corrected. For this reason, adolescents should be informed about reproductive health by providing a separate outpatient clinic service, provide easier access to family planning centers and better antenatal care and follow up should be given.

Ethical statement

Informed approval was obtained from every participant in the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.'

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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