

Unwanted obstetric and neonatal consequences of adolescent pregnancies

Adölesan gebeliklerin istenmeyen obstetrik ve yenidođan sonuçları

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ABSTRACT

Objective: Adolescent pregnancies are one of the most important healthcare problems worldwide effecting social life and women health. We aimed to compare obstetric and neonatal outcomes between pregnancies of adolescent and women of reproductive age.

Methods: This study was conducted with adolescent and reproductive aged 3163 pregnant women who gave birth in our maternity and children's disease hospital between January 2013 and January 2014. Among them 1314 of them were adolescent pregnant aged under 20 years. The data for maternal age, gestational week at birth, mode of delivery, presence of operative delivery, birth weight, APGAR score, and number of premature births were recorded for each delivery.

Results: The rate of adolescent pregnancy was found as 6.35% in our study. The rate of premature births were 37% in adolescent group and significantly higher than reproductive age group ($p < 0.001$). However preterm delivery was detected in 346 reproductive aged women with a rate of 19%. 1st and 5th minute APGAR scores were significantly lower in the adolescent group (p values; < 0.001 , and < 0.001 , respectively). The mean birth weight was 3000 ± 50 gr in the adolescent, and age 3200 ± 50 gr in the reproductive age group. These parameters were statistically significantly lower in the adolescent group with p values < 0.001 Cesarean section rate was 17% in the adolescent group which was found to be statistically significant ($p < 0.001$).

Conclusion: Adolescent pregnancies are associated with poor obstetric and neonatal outcomes such as preterm labor, lower birth weight and lower APGAR scores.

Key words: Apgar score, newborn, adolescence

ÖZ

Amaç: Adölesan gebelikler sosyal yaşamı ve kadın sağlığını etkileyen dünya çapındaki önemli sağlık sorunlarından biridir. Biz ergen ve üreme çađındaki kadınların gebelikleri arasındaki obstetrik ve neonatal sonuçları karşılařtırmayı amaçladık.

Yöntem: Bu çalışma, Ocak 2013 ve Ocak 2014 tarihleri arasında kadın doğum ve çocuk hastalıkları hastanemizde doğum yapan adölesan ve üreme çađındaki 3163 gebe ile yapılmıştır. Katılanların 1314'ünü 20 yaşından küçük adölesan gebeler oluşturmaktaydı. Doğum şekli, operatif doğum varlığı, doğum ağırlığı, APGAR skoru ve prematüre doğumların sayısı, anne yaşı, gebelik haftası gibi veriler her gebelik için kaydedildi.

Bulgular: Adölesan gebelik oranı çalışmamızda %6,35 olarak bulundu. Prematüre doğumların oranı adölesan grubunda %37 idi ve üreme çađındaki gruptan ($p < 0,001$) anlamlı derecede yüksek bulundu. Ancak preterm doğum %19'luk oran ile üreme çađındaki 346 kadında saptanmıştır. Birinci ve 5. dk. APGAR skorları adölesan grupta anlamlı olarak düşüktü (p değerlerinin sırasıyla, $< 0,001$, $< 0,001$). Ortalama doğum ağırlığı adölesan grup için 3000 ± 50 g idi, ortalama doğum ağırlığı üreme çađındaki grup için ise 3200 ± 50 g idi, bu parametreler adölesan grupta anlamlı olarak düşüktü ($p < 0,001$). Sezaryen oranı adölesan grupta % 17 idi ve üreme çađındaki gruptan daha az görülmüş olup, bu farklılık istatistiksel olarak anlamlı bulunmuştur ($p < 0,001$).

Sonuç: Adölesan gebelikler preterm eylem, düşük doğum ağırlığı ve düşük APGAR skorları gibi kötü obstetrik ve yenidođan sonuçları ile ilişkilidir.

Anahtar kelimeler: Apgar skoru, yenidođan, adölesan

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INTRODUCTION

Adolescent pregnancy is defined as any pregnancy occurring among teenage girls aged 19 years or younger. World Health Organization (WHO) statistics have reported a incidence of 11% for teenage pregnancies worldwide ⁽¹⁾. The adolescent pregnancy rate is varying between 8.7-11.8% in our country ⁽²⁾.

Adolescent pregnancies are one of the most important problems worldwide in terms of economy, social life and health ⁽³⁾. In developing countries, like ours, early marriage and early pregnancies are common due to cultural and socioeconomic conditions and lack of education ⁽⁴⁾.

Many studies showed the association of early pregnancies with poor perinatal results. Low birth weight, premature birth and sudden loss of fetus are common in adolescent pregnancies ⁽⁵⁾. The reason for these poor perinatal results were thought to be associated with physical immaturity and malnutrition of the mother, however this hypothesis remains controversial ⁽⁵⁾.

In this study we aimed to determine the obstetric and neonatal outcomes for adolescent pregnancies.

Materials and methods

This is a retrospective study including 1314 primipara adolescent pregnant women with age of ≤ 19 years who were delivered in Diyarbakır Maternity Hospital between the time period January 2013 and January 2014. 1850 healthy pregnant women who were delivered in the same time period with 20-45 years old age and single pregnancies were taken as control group. The rate of prematurity, birth weight, mode of delivery and APGAR (Activity, Pulse, Grimace, Appearance, Respiration) scores were evaluated. Multiple pregnancies, births under 22 weeks of gestation and fetuses with under 500 gr of weight, smoking pregnant women, and pregnant women with history of uterine surgery were excluded from the study. Preterm delivery was accepted before 37th weeks of gestation. The gestational age was calculated by asking last menstrual period day. When gestational age by the last menstrual period and ultrasonographic biometry were

inconsistent, the gestational age at birth was calculated according to the first trimester CRL (crown rump length) measurement.

We included all eligible pregnant women within the study without an a priori sample size calculation.

Statistical analysis

The mean and the median, standard deviation, ratios and frequencies were used in descriptive statistics. The distribution of the data were measured with Kolmogorov-Smirnov test. Mann Whitney U test were used in quantitative data and student t tests were used in qualitative data. SPSS 22.0 Package Programme was used in analysis.

RESULTS

There was 20.050 deliveries during the study period in our hospital. The mean age was $18 \pm 1,1$ in adolescent age group and $28.7 \pm 5,8$ in reproductive age group (Table 1).

The mean week of gestation at birth was $37,6 \pm 2,5$ weeks, in adolescent age group, the mean week of gestation at birth was $38,6 \pm 2,3$ weeks, in reproductive age group this parameters were significantly lower in adolescent group with p values $<0,001$. The mean birth weight was in adolescent age group 3000 ± 50 gr, and the mean birth weight was in reproductive age group 3200 ± 50 gr, this parameters were significantly lower in adolescent group with p values $<0,001$, APGAR score of 1st minute was $7,6 \pm 1,1$ and 5th minute was $9,5 \pm 1,3$ and all of these parameters were significantly lower in adolescent group with p values $<0,001$, $<0,001$, $<0,001$, $<0,001$, respectively. The preterm labor rate was significantly higher in adolescent group with 489 pregnancies with a rate of 37%. However preterm delivery was with 346 reproductive aged women with rate of 19%. This was also statistically different in adolescent group than the other group with p value $<0,001$. Ceasarian section was less common with a rate of 17% in adolescent group than the control group and this difference was statistically significant ($p < 0,001$) (Table 1).

Table 1. Comparison of adolescent group and reproductive aged group.

	Adolescent group		Reproductive aged group		p value
	Mean±SD/n-%	Med(Min-Max)	Mean±SD/n-%	Med(Min-Max)	
Age	18,0±1,1	18 (14-19)	28,7±5,8	28 (20-45)	
Gestational week	37,6±2,5	38 (27-42)	38,6±2,3	39 (26-42)	<0,0001
Birth weight (gr)	3,000±50	3,100 (80-44)	3,200±50	3,200 (70-51)	<0,0001
APGAR 1st min	7,6±1,1	8 (0-10)	8,0±0,9	8 (0-10)	<0,0001
APGAR 5th min	9,5±1,3	10 (0-10)	9,8±0,8	10 (0-10)	<0,0001
Gestational week < 37	489 (37%)		346 (19%)		<0,0001
Gestational week ≥ 37	825 (63%)		1503 (81%)		
Mode of delivery			1266 (68%)		<0,0001
Vaginal	950 (72%)				
Cesarean section	228 (17%)		520 (28%)		
Operative delivery	136 (10%)		63 (3%)		

DISCUSSION

Adolescent pregnancies are being considered as high risk group of pregnancies when compared with reproductive aged ones expediting perinatal and neonatal complications such as preterm labor, low birth weight and lower APGAR scores (2). This could be due to inadequate maternal nutrition (7), the lack of adequate maturation of the hypothalamohypophyseal axis for the maintenance of the pregnancy (8), inadequate uterine and cervical maturation (9) and the high rate of genitourinary tract infection in the early period adolescent group (10).

There is controversial reports on mode of delivery rates for adolescent and reproductive aged pregnancies in the literature. Tsikouras et al. have found a higher C-section rate in early period of adolescent pregnancies than normal age group pregnancies (11). They speculated higher cesarean rates may be explained by cephalopelvic disproportion resulting with prolonged labor because of insufficient maturation of the maternal pelvis. We also found a high risk of operative labor in adolescents with a rate of 10%.

However, in the study of Zeteroğlu et al (12) among 40391 pregnant women, lower rates of cesarean section was found in adolescent pregnancies same as our results. This data is also the same with other reported studies in the literature (13,14). We may speculate that this result could be explained with presence of more appropriate elastic connective tissue with adolescent

pelvic organs (15). It also can be explained with higher incidence of low birth weight fetuses with adolescent pregnancies thus delivery progress may not be affected by pelvic immaturity.

Many different studies have reported the relation of preterm labor and adolescent pregnancy in the literature (16,17). In a study by Satin et al. a significant higher rate of preterm labor was obtained in pregnant women aged between 11-16 years among 16500 nulliparous women (18). In studies from our country, the rate of preterm labor in adolescent pregnancies was reported as 7%-9.3% which is significantly higher than reproductive aged ones. Our study also supported these results by showing the significant difference of preterm labor in adolescent pregnancies with a rate of 5,7%. We may explain this results with biologic immaturity of musculoskeletal system and internal genital organs and elevated levels of prostoglandines that triggering preterm labor (19,20).

We also found that babies of adolescent pregnancies had lower birth weights when compared to reproductive aged group. A study from USA showed that adolescent pregnancy is an independent risk factor for IUGR but in the study of Gordon et al., no significant difference of IUGR was observed between adolescent and adult pregnancies (21,22).

Ezegwui et al (23) showed that the 1st minute APGAR scores were significantly lower in adolescent pregnancies concordant with our results. This could be explained by increased risk of premature

delivery in adolescent pregnant.

In conclusion adolescent pregnancies were considered as high risk group depending on the poor obstetric results. Many public educational programmes should be arranged by experts for prevention of adolescent pregnancies.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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