

Obstetric and neonatal outcomes of adolescent pregnancy

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ABSTRACT

OBJECTIVE: We performed a retrospective study to evaluate adolescent pregnancies as for gestational complications, and prinal outcomes.

METHODS: We evaluated 341 pregnant women whose data we could reach regarding gestational, and perinatal complications.

RESULTS: In our study group anemia (35.4%), preeclampsia/eclampsia (1.45%), premature membrane rupture (1.4%), intrauterine growth retardation (3.81%), and instrumental delivery (0.3%) were seen in indicated incidence rates.

CONCLUSION: In our retrospective study, we found lower our complication rates in adolescent age group when compared with the adult age group, and other studies performed in adolescents. Since our hospital is a tertiary health care institute, and we monitored our patients closely, our incidence rates can be better than those cited in the literature. As long as proper antenatal surveillance is employed, adolescent mothers do not seem to have increased risk for most of obstetric complications.

Keywords: Adolescent pregnancy; cesarean ratio; fetal outcomes; maternal complication.

Adolescent pregnant women have been defined as pregnant women aged between 13–19 years. It is a prominent health problem in all the world. Based on the data of The World Health Organization, every year approximately 16 million deliveries are realized in this age group [1].

Globally, adolescent birth rates for each 1000 births between the years 2010, and 2014 were 0.051 in South Africa, 0.031 in The United States of America (USA), 0.026 in the UK, 0.008 in Ire-

land, and 0.009 in China. Among all countries of the world, the highest rate (205/1000) belongs to Nigeria. For each 1000 women between the ages of 15–19 years, the highest adolescent birth rate is detected in the Central Africa (137/1000), and the lowest rate (4.8) is found in the Western Europe. Three countries with the lowest birth rates among adolescents in the 15–19 age bracket are Slovenia (0.0006), Northern Korea (0.0006), and Switzerland (0.0019) [2]. In our country 16.7% of

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our population consist of people in the adolescence age group. In our country adolescent birth rate was 0.024 in the year 2013. Fertility rate is at its highest in the province of Agri. In the year 2012, 9.5% of the adolescent mothers were not married, while 90% of them were officially married [3].

The differences in complication rates between adolescent, and adult pregnancies have not been explained clearly. Although some studies have yielded clear-cut opinions, explicit outcomes have not been reported especially regarding preeclampsia, abortus, nutritional disorders, gestational diabetes, and other gestational complications [4].

While we were planning this study, we aimed to investigate if maternal complications seen in pregnant aged 13–19 years who gave birth in our clinic are different when compared with those of the normal adult population, and adolescent groups analyzed in other studies.

MATERIALS AND METHODS

Adolescent pregnant aged less than 19 years who presented to the Clinic of Obstetrics, and Gynecology of Ankara University Faculty of Medicine between January 2008, and September 2014 were included in the study. We evaluated these pregnant as for the presence of preeclampsia, eclampsia, intrauterine growth retardation (IUGR), premature membrane rupture (PMR), gestational cholestasis, premature labour, fetal malformation, mode of birth, and hospitalization rate of newborns in in-

tensive care unit In this age group 353 adolescents gave birth, and data of 12 patients were not available, so they were excluded from the study.

Statistical analysis, and distribution range of data, and their incidence rates were calculated using SPSS 21.0 program. Parametres with normal, and non-normal distribution were evaluated using t-test, and Mann-Whitney U test, respectively. Parameters with p value of <0.05 were considered to be statistically significant.

RESULTS

Data of 341 adolescent pregnant were included in the study. Characteristic features of the patients have been given in detail in Table 1.

Adolescent pregnant were also evaluated as for mode of delivery, and pregnant gave birth via vaginal delivery (n=242; 70.96%), and cesarean section (n=99;29.04%) Singleton, and twin adolescent pregnancies were detected in 339, and 2 (0.52%) patients, respectively. Seven (2%) patients gave normal birth by induction. Modes of delivery, and indications of cesarean section are given in Tables 2, and 3, respectively.

During monitorization of the pregnant, an abnormal finding was detected in 54.99% of the pregnant. Anemia was the most frequently encountered symptom. All detected complications are summarized in Table 4.

Preterm delivery (before 37. gestational week)

TABLE 1. Characteristic features of adolescent pregnant

	Mean±SD	Minimum	Maximum
Gravida	1.08±0.30	1	3
Parity	0.04±0.2	0	1
Age	17.58±0.65	15	18
Gestational week	38.6±1.83	41*5	26*2
Birthweight	3130.7±491.5	830	4700
Apgar score 1. min	8.25±0.94	3	10
Apgar score 5. min	9.52±0.59	6	10
Hemoglobin	11.5±1.48	7.6	17.4

was seen in 31 (9%) of the adolescent pregnant, while 12% of the newborns were hospitalized in the intensive care unit.

Regarding fetal malformations, sacrococcygeal teratoma (n=2), fetal meningomyelocele (n=2), fetal cardiac arrhythmia (n=1), and micropenis associated with cryptorchidism (n=1) were detected. Any perinatal mortality was not seen.

DISCUSSION

Adolescent pregnancies continue to be a health problem worldwide [2]. Adolescent births have been associated with lower socioeconomic, and educational level, ethnic, and cultural factors, and religious beliefs. However fertility rates increase with age. In our country, fertility rates are 1, and 13% in adolescents aged <15, and at 19 years of age, respectively [3].

After registration of pregnancies especially in this age group, the incidence of these complications, and whether adolescent pregnancy is a risk factor or an ineffective issue for these complications have become a current issue. In their study in the year 1995, Mahfouz AA et al. stated that adolescent pregnancy is a risk factor by all means which leads to low birthweight, instrumental delivery, anemia, intrauterine growth retardation, abortus, nutritional disorder, and inadequate antenatal surveillance. They also indicated that a satisfactory antenatal care would eliminate this risk [5]. Still in a study conducted by Imir GA et al., as confirmed by many other studies, higher rates of preterm delivery, eclampsia, and abortus have been reported [6]. Liu X et al. reported higher rates of anemia (1.4-fold), preeclampsia (1.6-fold), preterm delivery (2.1-fold), low birthweight (2.3-fold), and perinatal mortality (3.6-fold) among pregnant women aged 25–29 years of age [7].

Despite all of these studies, when compared with normal adult pregnancies, differences in the incidence of abortus, low birthweight, infection, toxemia, preeclampsia, anemia, intrauterine growth retardation risks in adolescent pregnancies have not been clearly stated [8, 9]. Contrary to other studies in our study we observed lower preeclampsia/eclamp-

TABLE 2. Mode of delivery

	n	%
Vaginal delivery	242	70.96
Delivery using right mediolateral episiotomy	239	70.08
Normal vaginal delivery	2	0.58
Forceps	1	0.30
Cesarean delivery	99	29.04

TABLE 3. Indications of cesarean section

	n	%
Fetal distress	36	36.36
Malpresentation	20	20.21
Non-progressive labour	18	18.18
cephalopelvic disproportion	10	10.1
Previous cesarean	6	6.06
Eclampsia/preeclampsia	3	3.03
Maternal disease	2	2.02
Fetal meningomyelocele	2	2.02
Fetal sacrococcygeal teratoma	1	1.01
Maternal request	1	1.01
Total	99	100

TABLE 4. Obstetric complications

	n	%
Preeclampsia	3	0.87
Eclampsia	2	0.58
Intrauterine growth retardation	13	3.81
Premature membrane rupture	5	1.46
Premature labour	3	0.87
Gestational cholestasis	3	0.87
Polyhydramnios	2	0.58
Oligohydramnios	5	1.46
Anemia	121	35.4
Preterm delivery	31	9.09
Total	157	54.99

sia rates when compared with the adult pregnancies.

However in a study performed by Astha R et al. the authors indicated that rates of cesarean sections performed were 1.6-fold higher in the adolescent pregnancy group when compared with the adult pregnancies because of preeclampsia, eclampsia, PPRM, antepartum, and postpartum bleeding, and nonprogressive labour (44, and 21%, respectively) [10]. Especially in studies investigating maternal age, and birthweights, preterm birth rates among pregnant aged less than 16 years were 1.8 times higher relative to those aged 20–29 years [11]. Besides, maternal comorbidities (HIV; malaria, syphilis, tuberculosis, hypertension, and maternal infection) are seen more frequently in adolescents [10]. In our study preterm delivery was seen in 9.09% of the adolescents. Lower rates of these complications might be related to scarce number of patients aged less than 16 years of age. As another assumption for our lower rates of complications, since our hospital is a university hospital, our patients are regularly followed up.

Perinatal mortality rates were analyzed, and stillbirths (5.5/1000), perinatal (8.9/1000), and neonatal (4.4/1000) mortality rates were detected in respective percentages which were seen to be higher when compared with the adult population. In the adolescent groups, prematurity, and neonatal mortality rates were 2-fold higher relative to adult groups [12]. A certain proportion (9.6%) of neonatal mortality consisted of pregnant younger than 20 years of age [12]. The most frequently seen etiologies were prematurity, and low birthweight (29%), neonatal infections (25%), birth trauma, and asphyxia (23%), congenital anomalies (8%), neonatal tetanus (2%), and diarrhea (2%) [13].

In Africa, maternal age of 50% of the mothers is less than 20 years of age. Neonatal mortality rates in mothers aged <15, 16–17, and 18–19 years are 55, 19, and 6%, respectively. These neonatal mortality rates are higher than those seen in pregnant older than 20 years of age [14].

In a study performed by Astha R et al. pregnancy rates between African adolescents, and adults were compared, and incidence rates were detected

as 3968/1000, and 2347/1000 among adolescents, and adults, respectively. Educational level in adolescents, and their families was markedly lower, while among adolescents unmarried women were more numerous. In the adolescent group separate parents were more frequently seen. In adolescents first-time pregnancy rates were 2.2-fold higher [10].

In our study, first-time pregnancies were seen in 95.61% of the adolescent women. Contrary to other studies, probably the most diverse outcome of our study is that we haven't encounter any case of perinatal mortality. Fetuses with anomalies were successfully operated during the neonatal period.

We investigated mode of delivery of our patients, and found rate of cesarean section (C-S) as 29.04 percent. In literature studies C-S rates ranging between 20, and 30% have been reported [6, 15, 16]. Indications of cesarean section include acute fetal distress (31.3%), malpresentation (23.3%), and previous C-S (22.2%) [6]. However in our study, indications of C-S were acute fetal distress (36.3%), malpresentation (20.2%), nonprogressive labour (18.1%), and cephalopelvic disproportion (10.1%).

In the Turkish population of all age groups, incidence rates of low birthweight (9.5%), preterm delivery (13%), congenital anomaly (1.5%), stillbirth (1.8%), and early neonatal death (1.7%) are as indicated in parentheses [17]. In our study rates of IUGR, premature labour, and congenital anomalies were 3.81, 9.09 and 1.46%, respectively.

In a study by Yildirim et al. obstetric complications in adolescent pregnancies consisted of low birthweight (28.7%), gestational hypertension (23.4%), anemia (21.8%), and forceps/vacuum assisted delivery (21.6%). In the same study 5. min mean APGAR score was 8.9 ± 0.9 points [18]. In our study mean APGAR scores were 8.25 ± 0.941 , and 9.52 ± 0.59 at 1., and 5. minutes, respectively. We haven't encountered any incident of vacuum assisted delivery. We observed one case of forceps delivery.

Imir et al. reported that the incidence of development of eclampsia in adolescent pregnant was significantly higher when compared with the adult pregnant (5 vs 1.5%). However, any significant dif-

ference was not observed in the incidence rates of HELLP syndrome, and preeclampsia [6]. In our study, preeclampsia (n=3; 0.87%), and eclampsia (n=2; 0.58%) were also encountered.

In a study performed by Melekoglu et al. preterm labour (37.5%), preeclampsia (31.3%), intrauterine growth retardation (20%), fetal distress (20%), congenital anomalies (16.3%), and anemia (40%) were seen in adolescent pregnant in respective incidence rates. As reported by the authors, they were statistically significantly higher relative to the adult group [19].

In a study by Keskinoglu et al. the incidence of oligohydramnios was found to be 0.2 percent [20]. In our study, in 1.46% of adolescent pregnant oligohydramnios was detected. Besides, they estimated incidence rate of congenital anomalies as 1.1 percent [20]. However according to Demir et al. its incidence was 3.6 percent [21]. In our study we observed congenital anomalies in 1.46% of our adolescent pregnant.

In various studies, incidence of gestational cholestasis has ranged between 0.1, and 15.6 percent. Gestational cholestasis progresses with prematurity, and fetal complications as meconium aspiration syndrome, and intrauterine death [22]. In our study gestational cholestasis was seen in 0.87% of our patients which is in compliance with the literature.

In our country 40.2% of the pregnant have been indicated to have iron deficiency anemia [23]. In a study by Tekbas et al. its rate was reported as 17.2 percent. They indicated incidence rates of this type of anemia in the first, second, and the third trimesters as 10.4, 21.5, and 27.7%, respectively [24].

In a study by Bozyel et al. overall incidence of anemia was reported as 25.4 percent. Incidence rates of anemia in pregnant were indicated as 33.3% in the 15–19, and 22.7% in the 20–35 age groups [25]. In another study overall prevalence of anemia was found to be 42.4%, while prevalence rates of anemia were 59.4% in pregnant aged ≤ 19 years, 40.8% in 20–29, 39.5% in 30–39 age groups, and 25% in pregnant aged ≥ 40 years [26]. In our study, anemia was observed in 121 (35.4%) pregnant in their 3. trimesters.

Even outcomes of our study seems to be favourable, the greatest limitation of our study is that our hospital does not completely reflect average socio-cultural level of our country, because of its location.

In conclusion, in our country, adolescent pregnancy rate is very high, and majority of the total population is delivered by adolescent pregnant. This condition is a very important health problem both in all the world, and in our country. This phenomenon should be corrected by training, and legal approaches. However despite all of these measures, we should provide detailed information about appropriate prenatal care, antenatal surveillance, adequate nutrition, and then contraception to our pregnant patients.

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