Pregnancy outcome in teenagers in East Sauterne of Iran

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Abstract

Objective: To compare pregnancy outcomes among teenagers in comparison with women of older age groups.

Methods: A retrospective cohort study was carried out, comparing pirimiparous pregnant teenager women aged 13-19 years, arranged in to two groups: low teens (≤ 16 years old) and high teens (17-19 years old), with pirimiparous women aged 20-29 years from January 2003 through January 2005 in Ali-ebne Abitaleb hospital of Zahedan, Iran.

Frequency of prenatal care and perinatal outcome (newborn's weight and gestational age at delivery), mode of delivery and any maternal complications were recorded.

Results: Proportions of intrauterine growth retardation (IUGR) and preterm birth were highest among the infants of mothers aged 19 years or less compared with women aged 20-29 years (P<0.001). Also IUGR and preterm births were highest among the infants of low teen mothers than high teen mothers (P<0.001) . The incidence of caesarean section in low teens was higher than high teens (P=0.001), but caesarean was not higher among mothers aged 19 years or less compared with women aged 20-29 years. There was no significant difference in pre eclampsia and placental abruption between all three groups, while frequency of placenta previa was higher in teenage group than older gravidas (P=0.001).

Conclusion: In this homogenous population, preterm delivery, IUGR and placenta previa were higher in teenagers than older gravidas despite of good prenatal care (JPMA 58:541; 2008).

Introduction

Adolescent pregnancies are associated with maternal and foetal complications and teenage pregnancies have been considered high-risk[1]. Previous studies have shown that young mothers and their new borns are more at risk of pregnancy-induced hypertension, anaemia, obesity, low birth weight and preterm birth[2,3]. The studies have also found association between teenage pregnancy and ante partum foetal death[4-6].

Pregnancies in adolescents are also associated with social and economic risk factors, which are independent for adverse outcomes of pregnancy[7]. Studies revealed that childbearing at an early age have been associated with infant homicide[8], pregnant teenagers often live in abusive and secluded environments[9,10]. Teenage pregnancies might be exposed more to recreational drugs, tobacco, alcohol, emotional stress and suboptimal antenatal care, all of which have been defined as independent risk factors for complicated perinatal outcome[11]. Authors have suggested that age ≤ 15 is very critical, below which the risk of infant death, very low birth weight (<1500 g) and preterm birth (less than 32 weeks) is elevated compared to older adolescent mothers[12]. Scholl et al. have found that adolescent pregnant are high-risk due to factors more common among this age group, such as low gynaecologic age, biologic immaturity, inadequate prenatal care, poverty, minority status, and low pre pregnancy weight, all of these might continue to influence the outcome of subsequent pregnancies[13].

The objective of the present study was to compare perinatal outcomes between 13 and 19 years old primiparous teenagers and 20-29 years old primiparous women.

Subjects and Methods

A retrospective cohort study was carried out on 10,352 pregnant women, comparing pregnant teenagers with older gravidas. The study was approved by the local ethics committee. The study population included primiparous singleton teenage women aged 13-19 years, and primiparous 20-29 years in Zahedan, a selected population of religious Muslim women in Iran. In these societies marriage at a young age is routine and also pregnancy at an early age is desired. Teenagers were grouped into low teens (16 years and younger) and high teens (17-19 years old). Prenatal and hospital records were studied for all women under age 29 who were referred to Ali-ebne Abitaleb hospital serving a high-risk inner city population, during the 24-months period extending from January 2003 through January 2005. A chart review was performed for all women in study groups. Demographic details, mode of delivery, gestational age at delivery, newborn's weight, frequency of prenatal visits and any maternal complications were recorded. Maternal age was

defined as age in completed years at delivery, and full weeks were calculated to describe the gestational age. Primiparous were selected in order to have more similar and homogenous groups and to exclude factors that may contribute to preterm delivery in multiparous women, e.g. short inter-pregnancy interval and previous preterm birth. The outcome variables were preterm birth (birth less than 37 completed weeks of gestation) and IUGR (weight less than the tenth percentile for gestational age). Mothers with any underlying disease were excluded. Prenatal care was considered inadequate if the number of antenatal visits was less than the mandatory number after taking into account the length of gestation, by the 25th week of gestation there should have been at least two visits, by week 26-29, at least three visits, by week 30-33, at least four visits and by week 34 or more, at least five visits included and if the number of visits were equal or more than these numbers considered fair to good and adequate.[14] The analysis was performed using students' t-test, chi-square test and the relative risk ratio, p-value less than 0.05 was considered statistically significant.

Results

Out of 10,352 primiparous women aged 13-29 years, 156 (1.51%) were 13-16 years old and 1076 (10.39%) were 17-19 and 9120 (88.09%) were 20-29 years old at delivery. Demographic data were compared between teenagers group and 20-29 years group (Table 1). The mean age for teenage mothers was 16.8 ± 0.19 years, with a minimum age of 13 years, and the mean age for 19-29 years was 23.2 ± 0.31 years. Most teenagers had fair to good prenatal care. Mean number of prenatal visits was 7 ± 2.1 (4-14). Most of them (85.3%) had their prenatal care at the managed care or community based clinics.

The weight of young gravidas was significantly less than older women, when they presented for prenatal care ($p < 0.001$). The obstetric outcomes were compared in teenage groups and older women (Table 2). Proportions of IUGR and preterm births were significantly higher among the infants of mothers aged 13-19 years than women aged 20-29 years ($p<0.001$). Majority 83.8% (8675/10352) of the patients had normal vaginal delivery, while only 16.2% (1677/10352) underwent caesarean section. The incidence of caesarean was not significantly different between teenagers and 20-29 years old group.

Pre eclampsia or eclampsia was seen among 22 cases (1.8%) of teenagers and 138 cases (1.5%) of older women and there was no significant difference between the groups. No increase in the incidence of placental abruption was observed in teenagers group. Rate of placenta praevia in teenagers group (0.9%) was higher than 20-29 years group (0.2%) (p=0.001).

All newborns except one had an Apgar score of ≥ 7. Also the obstetric outcomes were compared in all three groups (Table 3) and variables within the two teenage sub groups were also compared (Table 4). The mean age was

Table 1: Demographic data by age groups.

Group	≤ 19 years	20-29 years	P value
Number of patients	1232	9120	
Age (years)	16.8±0.19	23.2±0.31	<0.0001*
Marital status (%)	98.9	98.2	0.089
Maternal weight(Kg)	52±3.3	61.12±4.4	<0.001*
Smoker (%)	3.63	4.24	0.33
Inadequate prenatal visits (%)	9.2	8.6	0.5

*p<0.05 statistically significant

Table 3: Comparison of obstetric outcomes by age groups.

	≤ 16years	17- 19 years	20-29 years	P value
Number of patients	156	1076	9120	
IUGR (%)	28.8	14.4	10.4	<0.0001*
Preterm birth (%)	19.2	5.9	3.3	<0.0001*
Caesarean section (%)	25.5	83.2	84	0.008
Pre eclampsia (%)	3.2	1.6	1.5	0.24
Placental abruption(%)	0.6	0.7	1	0.56
Placenta praevia (%)	1.3	0.8	0.2	0.001*

*p<0.05 statistically significant.

Table 2: Comparison of obstetric outcomes between teenagers group and 20-29 years group.

	≤ 19 years	20-29 years	RR	95% CI	P value
Number of patients	1232	9120			
IUGR	16.2%	10.4%	1.567	1.361-1.803	<0.0001*
Preterm birth	7.5%	3.3%	2.295	1.833-2.873	<0.0001*
Caesarean section	17.9%	16%	1.118	o.983-1.271	0.093
Pre eclampsia	1.8%	1.5%	1.180	0.756-1.843	0.46
Placental abruption	0.6%	1.0%	0.673	0.327-1.384	0.27
Placenta praevia	0.9%	0.2%	3.878	1.874-8.023	0.001*

*p<0.05 statistically significant.

Table 4: Comparison of obstetric outcomes between lowteens and highteens.

	≤ 16years group	17- 19 years group	RR	95% CI	P value
No	156	1076			
IUGR	28.8%	14.4%	2.002	1.504-2.666	<0.0001*
Preterm birth	19.2%	5.9%	3.284	2.199-4.905	<0.0001*
Caesarean section	25%	16.8%	1.486	1.098-2.011	0.012*
Pre eclampsia	3.2%	1.6%	2.029	0.759-5.421	0.18
Placental abruption	0.6%	0.7%	0.985	0.122-7.955	1.00
Placenta praevia	1.3%	0.8%	1.533	0.334-7.029	0.63

*p<0.05 statistically significant.

15.1 years for low teens and 17.8 for high teenagers. Proportions of IUGR and preterm births were higher among the infants of mothers aged 16 years or less compared with women aged 17-19 years (p<0.001).There were no significant differences in preeclampsia and placental abruption and placenta praevia between low teens and high teens. The incidence of caesarean in low teens (≤ 16 years old) was higher than high teens (p= 0.01).

Discussion

A major finding of this study is that teenage pregnancy increases the risk of IUGR and preterm birth in spite of reasonable prenatal care. Also a significantly higher placenta praevia rate was observed in teenagers. The results showed an increased rate of IUGR and preterm birth among younger teenagers.

Many studies have demonstrated increased risk of pregnancy and perinatal complications in teenage pregnancies including low birth weight[3,15], preterm birth[16,17] and perinatal mortality[18]. Many studies have reported the greater risks of IUGR and preterm birth in the younger teenagers[3,15,19]. Also the study conducted in India indicated a significantly higher rate of preterm labour and low birth weight among teenage mothers[20], which is in accordance to the current study findings.

In another study, no significant difference was seen in preterm labour and IUGR between adolescents 16-19 years old and older gravidas[19], which is in contrast to this study results showing that preterm labour and IUGR were higher in adolescents.

The differences in studies might be due to regional differences in the risk factors influencing teenage pregnancies such as race, sexually transmitted diseases, smoking during pregnancy, low education of mothers, parity and lack of appropriate prenatal care. In Iran smoking is not common among teenage females and most of girls are married and in this study all pregnant women were primigravida. Duplessis et al[15] found that race and ethnicity were independently associated with poor pregnancy outcomes in teenagers. One of the main contributing factors for the adverse outcome was lack of prenatal care[21]. The studies revealed that many teenagers, especially those under 16 years have inadequate prenatal care[22]. The complications could be reduced by educating teenage mothers on the importance of early prenatal care[22]. Studies have proved that rate of complications drop markedly with prenatal counseling and care[23,24]. In spite of this, most, but not all, randomized trials have failed to demonstrate that prenatal care for high-risk women improve birth outcomes[6].

In this study no significant differences were observed in the numbers of prenatal care of teenagers and older gravidas and poor attendance at prenatal clinics might not account for the increase of IUGR among teenagers. In this area and other areas of Iran, there is a community-based network of prenatal clinics, free of charge and these clinics are situated all over the country. Thus majority of pregnant women had reasonable prenatal care. However pregnant adolescents need integrated prenatal care and the lack of such care could be considered risk to mother and foetus.

An increase in caesarean delivery among teenagers was confirmed in some studies[15] but other studies failed to prove this[19]. These differences in reports might be due partly due to racial characteristics. In this study, no significant differences were seen in teenagers group and older gravidas in caesarean delivery but caesarean delivery was higher in low teens than high teens. Very young parturient might have more cephalopelvic disproportion because of incomplete growth in the pelvic size and capacity with resultant labour abnormality and caesarean delivery.

Reproductive immaturity is defined as a gynaecological age of less than 3 years since menarche[25], and the mean age of menarche is reported to be about 12.8 years in U.S. girls,[26] therefore young adolescents aged less than 16 years are predisposed to pregnancy complications. Therefore comparison between low teens (≤ 16 years) and high teens (17-19 years) was also considered. In Duplessi's study, low birth weight and preterm births in pregnancy less than 14 years of age was significantly higher than older teenagers[15]. Also in another study[3] pregnancy under age 15 had more infants of very low birth weight than older

teenagers. Amini S B et al[19] found that in pregnancy under age 16, rate of IUGR and preterm labour were higher than older gravidas. Also Hediger et al[9] found that biological immaturity, based on chronological as well as gynaecologic age (that is, proximity to menarche), was felt to be principally responsible for the two-fold increase in preterm birth. The results of this study were similar to those studies and IUGR and preterm labour were significantly higher in low teens than high teens. In addition the results showed an increased rate of IUGR and preterm birth among younger teenagers.

In Bateman BT's study[6] both placental abruption and placenta praevia were higher in teenagers than older gravidas. In the present study, the frequency of placenta praevia in adolescents was greater than older gravidas, but placental abruption was not higher in teenagers. These differences might be attributed to racial variation. Also the Verma V et al[20] study indicated a significantly higher rate of pregnancy-induced hypertension in teenagers. In the current study, pregnancy-induced hypertension was not higher in teenagers. Also there was no significant difference in placental abruption and placenta previa and pregnancy-induced hypertension between low and high teens.

In conclusion, mother's age of 19 years and less might be regarded as a risk factor for IUGR and preterm labour in spite of reasonable prenatal care. Very young parturient might have more IUGR, preterm labour and caesarean section due to incomplete growth in the pelvic size and reproductive system immaturity.

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