

Research Article

Maternal and Fetal Outcomes of First and Second Pregnancy in Adolescents: A Retrospective Study

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Keywords

• Teenage pregnancy; Obstetric outcomes; Antenatal care

Abstract

Study objective: to evaluate the impact of adolescent first and second pregnancy on fetal and maternal outcomes and to assess the prevalence of obstetric complications among this age group.

Design: This is a retrospective hospital-based study, women who attended our hospital for antenatal care between January 2014 and January 2015 were considered for eligibility. Adolescents < 20 years old who were presented by their first or second pregnancy were included as a study group and were controlled by women between 20 and 35 years old. Statistical analysis was conducted using SPSS software version 22.

Setting: Al-Sabeen hospital in Sanaa city (capital of Yemen).

Participants: One thousand and two hundred mothers aged less than 20 years (study group) and 2400 control mother whom age ranged between 20 to 35 years (control group).

Interventions and Main Outcome Measures: included women were evaluated for the pregnancy, mode of delivery, obstetric adequacy of antenatal care, complications of complications and fetal outcomes.

Results: Among the study group, the prevalence of adequate antenatal care visits was higher than the control group (55% vs. 42.5%, $P=0.001$). Pre-eclampsia was reported in 10% of adolescents versus 5.8% in control group ($p=0.001$). No gestational diabetes was diagnosed among adolescents. Antepartum hemorrhage was less prevalent among study group (5%) in comparison to the control group (10.8%). Normal vaginal delivery was less while instrumental delivery and Cesarean section rates were more in adolescent group (35% vs. 60%, 45% vs. 25%, 20% vs. 15%, respectively, $p=0.05$). The rates of intrauterine fetal death (IUFD) and stillbirth were comparable. Women in the control group tended to deliver newborns weighing > 3.5 kg (15% vs. 7.5%, $p=0.001$).

Conclusion: Adolescent pregnancy is a risk factor for pre-eclampsia, anemia, instrumental vaginal delivery and cesarean section. More frequent antenatal care visits may be warranted in these women.

INTRODUCTION

Adolescent pregnancy is a prevalent obstetric challenge; the incidence is 9% with teenage mothers being more subjected to inadequate antenatal care [1]. Because adolescent pregnancy is associated with significant antenatal and perinatal complications that deserve further medical attention, obstetricians should be aware of these risks so they can modify their antenatal care to improve both maternal and neonatal outcomes [2].

Young adolescents have an increased risk of maternal anemia, preterm delivery at less than 37 weeks of gestation, postpartum hemorrhage, preeclampsia or hemolysis, increased liver enzyme levels, and low platelet (HELLP) syndrome. However, some reports suggested that they have lower risk of cesarean delivery, chorioamnionitis, and neonatal intensive care unit admission [3]. Nevertheless, adolescents who have second pregnancies seemed

to experience fewer adverse perinatal outcomes than those associated with their first pregnancies [4]. Teenage mothers were more likely to have early antenatal visit than older mothers [5,6]. Furthermore, adolescent mothers also have significant social, economic and health care obstacles that are not attributed to particular communities [7,8].

Various studies conducted globally reported that the adolescent pregnancy is associated with poor fetal outcome [9,10]. A correlation between adolescent pregnancy and small for gestational age birth has been reported in many studies [9,11,12]. Other studies also reported increased risk of neonatal mortality [7,13,14], operative delivery [6] and cesarean section [5,15] among adolescents. In this study, our objectives were to evaluate the effect of young age on maternal and fetal outcomes during the first and the second pregnancy, and to assess the prevalence of adverse events in comparison to elder women.

MATERIAL AND METHODS

This is a retrospective hospital based study. Pregnant women who attended AL-Sabeen hospital for antenatal care and delivery and who aged less than 20 years (cases) or between 20-35 years (controls) were considered eligible. Women with inadequate records or who did not sign research authorization to use their data were not included. Both groups attended Al- Sabeen hospital in Sanaa city capital of Yemen during the period from one January 2014 to 31 December 2014. Data on ANC visits, antenatal, intrapartum, postpartum events and perinatal outcomes were abstracted on a standardized sheet designed for this study.

Primary outcomes included adequacy of antenatal care (adequate antenatal care was defined as visits to mother-childhood health care center "MCH" for more than 3 visits during pregnancy, inadequate antenatal care was defined as visits to MCH of less than 3 visits during pregnancy, and no antenatal care was defined as no visit to MCH during pregnancy). Adverse maternal and perinatal events present secondary outcomes. Maternal complication included pre-eclampsia, gestational diabetes mellitus (GDM), antepartum hemorrhage (APH) and anemia. Mode of delivery was another outcome which was classified to: normal vaginal delivery (NVD), caesarean section (C.S), or instrumental vaginal delivery. Fetal outcome included living newborn, intrauterine fetal death (IUFD), stillbirth (SB), and low birth weight.

Institutional review board approved this study and only women who signed a research authorization to use their records were included.

Statistical analysis

Events were expressed as numbers and percentages. Chi

square test was used to compare proportions. Analysis was done by using SPSS software version 22.

RESULTS

One thousand and two hundreds mothers aged less than 20 years (case group) and 2400 women in the control group were included. During the period of the study, adolescent women presented 12% of women who attended the hospital. Among case group, 660 cases (55%) had adequate antenatal care as compared to 1020 women (42.5%) in control group. Four hundred and twenty women in the case group (35%) had no antenatal care visits (versus 900 cases '37.5%' in control group) and 120 women had inadequate antenatal care visits (10%), as compared to 480 (20%) in the control group (Table 1).

Among adolescent women, 1020 (85%) did not experience obstetric complications (1960 "81.5%" in control group). Pre-eclampsia was the most commonly reported complication in case group (120 cases, 10%) while it was reported in 140 cases (5.8%) of elder women. The incidence of APH in adolescents was less than control group (60 "5%" vs. 260 "10.8 %"). No GDM was reported in case group while 40 cases (1.7%) were diagnosed in control group. Eventually, anemia was more prevalent in case group than control group (660 cases "55%" vs. 1070 cases "44.6 %") (Tables 2, 3). Regarding delivery, instrumental vaginal delivery was performed in 660 adolescents (45%). NVD was achieved in 420 cases (35%) and C.S was indicated in 240 cases (20%). In control group, 1440 women (60%) delivered vaginally (NVD), 600 women (25%) had instrumental vaginal delivery, and 360 cases (15%) underwent CS (Table 4).

In terms of fetal and neonatal outcomes, SB was approximately equal in both groups (11.7% vs. 10% respectively), and IUFD was found in 8.3% of adolescent pregnancies versus 240 cases (10%)

Table 1: Antenatal care visits among adolescents (cases) and elder women (controls).

Age	Adequate Antenatal Care		Inadequate Antenatal Care		No Antenatal Care		Total	
	No.	%	No.	%	No.	%	No.	%
< 20 yrs	660	55%	120	10%	420	35%	1200	100%
> 20 yrs	1020	42.5%	480	20%	900	37.5%	2400	100%

(Chi-Square= 76.719a, P value= 0.001(Moderate significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05

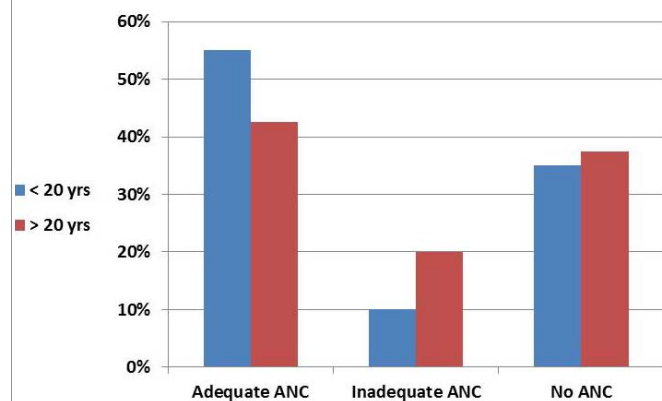


Table 2: Complications of pregnancy in both groups.

Age	No complication		PET		GDM		APH		Total	
	No.	%	No.	%	No.	%	No.	%		
< 20 yrs	1020	85%	120	10%	0	0%	60	5%	1200	100%
> 20 yrs	1960	81.7%	140	5.8%	40	1.7%	260	10.6%	2400	100%

Chi-Square= 76.719a, P value= 0.001(Moderate significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05

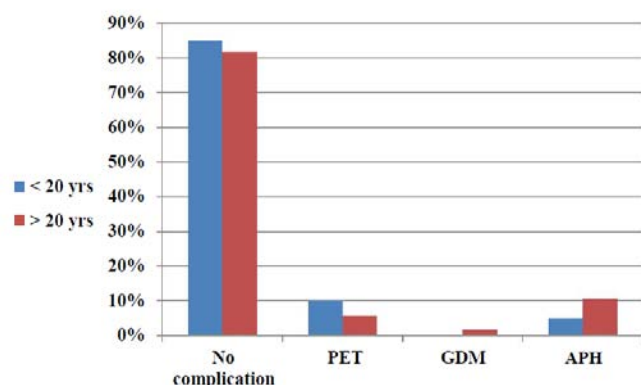


Table 3: Anemia in both groups.

Age	yes		No		Total	
	No.	%	No.	%		
< 20 yrs	660	55%	540	45%	1200	100%
> 20 yrs	1070	44.6%	1330	55.4%	2400	100%

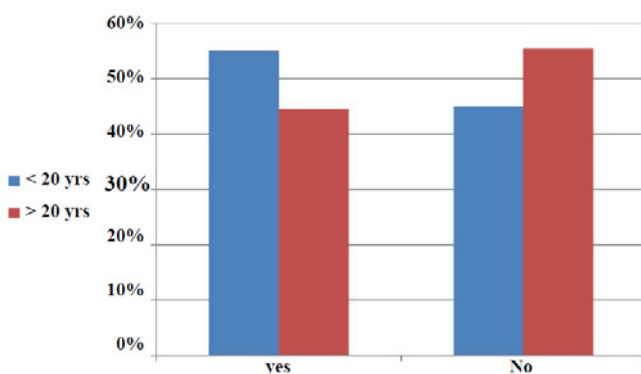
Chi-Square= 76.719^a, P value= 0.001(Moderate significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05



in control group. For birth weight, 900 women (75%) had babies weighed 2.5 to 3.5 kg (versus 1440 “60%” in control group). Birth weight > 3.5 kg was reported in 90 women (7.5%) among study group and 360 women (15%) in control group. Low birth weight < 2.5 kg was documented in 210 neonates (17.5%) in study group versus 600 neonates (25%) in control group.

DISCUSSION

This study aims to assess obstetric risk among adolescent women. In our study, the percentage of adolescent pregnancy

was 12% which is close to the percentage documented by one study done in Thailand [1]. Antenatal care had an important effect on pregnancy outcome [16]. We found that adolescents had high percentage of regular antenatal care visits than control group; this may be attributed to the fears and negative anticipations related to pregnancy and labor among this age group [6].

In the study, our adolescent population suffered most commonly from pre-eclampsia. According to the literature, hypertension with pregnancy is generally higher among younger age groups [10]. On the other side, GDM was less among

Table 4: Mode of delivery in both groups.

Age	Normal vaginal delivery		C.S		Instrumental vaginal delivery		Total	
	No.	%	No.	%	No.	%		
< 20 yrs	420	35%	240	20%	540	45%	1200	100%
> 20 yrs	1440	60%	360	15%	600	25%	2400	100%

Pearson Chi-Square=12.893^a. P value= 0.045(Mild significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05

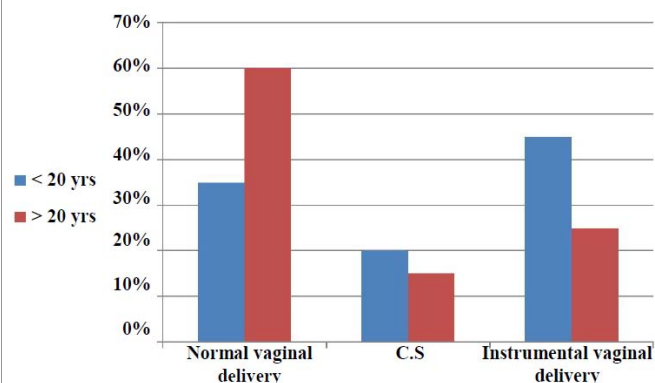


Table 5: Fetal outcomes in both groups.

Age	Living newborn		IUFD		SB		Total	
	No.	%	No.	%	No.	%		
< 20 yrs	960	80%	100	8.3%	140	11.7%	1200	100%
> 20 yrs	1920	80%	240	10%	240	10%	2400	100%

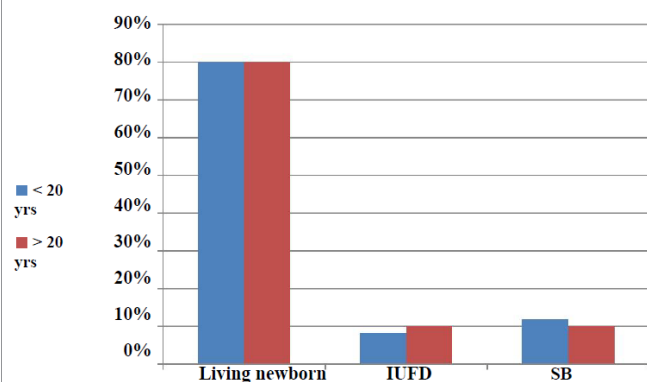
Pearson Chi-Square= 18.118a P value 0.112 (No significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05



adolescents, a result that is concordant with age predilection of GDM [15]. Anemia was also more common among adolescents. This conclusion was supported by a previous study done by Yadav *et al* 2008 [12]. A similar study also found significant difference between the study and control groups in the incidence of anemia (17.1% versus 11.1%, $p < 0.001$) [1]. The presence of high incidence of medical condition either in first or second pregnancy should recommend for more extensive antenatal care visit to screen for these medical condition, in addition

to screening of mode disorders and depression which may present and not aberrant in our society. Adolescents had higher risk for C.S than control group and this was similar to what was concluded by Bacci *et al* 1993 [6]. However, Lao and Ho 1998 reported less C.S rates among adolescents. This may be explained by the nature of the current study that was hospital based with more supervision and less conservative decisions. In concordance with our results, instrumental vaginal delivery was more common among adolescents according to Fraser *et al* 1995

Table 6: Newborn birth weight in both groups.

Age	<2.5 kg		2.5-3.5 kg		>3.5 kg		Total	
	No.	%	No.	%	No.	%		
< 20 yrs	210	17.5%	900	75%	90	7.5%	1200	100%
> 20 yrs	600	25%	1440	60%	360	15%	2400	100%

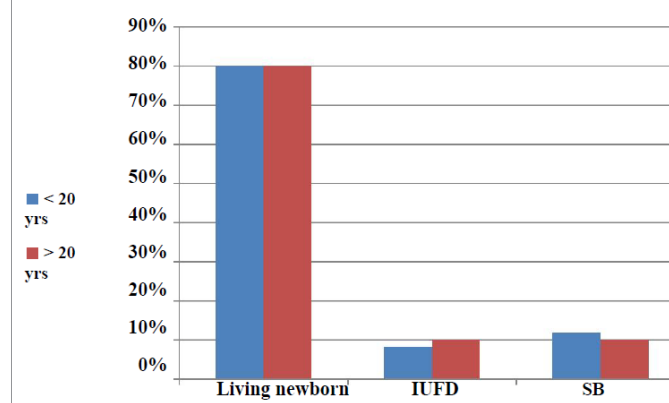
(Chi-Square= 76.719a, P value= 0.001(Moderate significance)

Highly significance: 0.0005

Moderate significance: 0.005

Mild significance: 0.05

No significance: More than 0.05



[5] and Yadav 2008 [12]. Generally, adolescents tend to deliver vaginally. Other studies also reported that vaginal delivery was the major route of delivery in teenage group in comparison to adult group [1]. Hospital delivery was therefore preferable for adolescent either in first or second pregnancy due to high incidence of instrumental vaginal delivery and cesarean sections.

We also found that the probability of live birth and SB was equal in both groups and this supports available evidence [8,17,16]. Birth weight was also comparable in both groups but adolescent tended to deliver fewer babies who weighed more than 3.5 kg. This is comparable to similar conclusions given by Haiek and Lederman and Lee *et al* [18,9]. Based on these risks, health care providers must be responsive to the unique developmental needs of adolescents through all stages of pregnancy, during intrapartum and postpartum care [19]. Postpartum care must involve concentration upon contraceptive methods, especially long-acting reversible contraception methods, as a means to decrease the high rates of repeat pregnancy in this population; counseling about contraception should begin before delivery to prevent either second or third adolescent pregnancy as this will decrease the bad medical and psychological outcomes of pregnancy upon adolescent or their infants [19].

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