

Comparison of Obstetric Outcome in Terms of the Risk of Low Birth Weight, Preterm Delivery, Cesarean Section Rate and Anemia in Primigravid Adolescents and Older Primigravida

Uzma Naz

ABSTRACT

Objective: To compare the obstetric outcome in terms of risk of low birth weight, preterm delivery, cesarean section rate and anemia in primigravid adolescents and older primigravida.

Study Design: Cohort study.

Place and Duration of Study: Department of Obstetrics and Gynaecology, Sir Ganga Ram Hospital, Lahore, from July to December 2012.

Methodology: Three hundred primigravid women presenting to department of obstetrics and gynecology of Sir Ganga Ram Hospital, Lahore, having live singleton pregnancy, including 150 adolescents (≤ 19 years) and 150 adults (≥ 20 years) were studied. Obstetric outcome in terms of gestational age at delivery, infant's birth weight, presence of anemia and cesarean section rate was compared between two groups. Results were analyzed using Statistical Package for Social Sciences (SPSS) version 16. Chi-square test was applied with 0.05 as level of significance.

Results: The mean age of adolescent subjects was 17.3 ± 1.5 years and of adults 25.6 ± 3.4 years. Mean gestational age at delivery was similar in two groups (39.2 weeks and 39.4 weeks, $p = 0.37$). Adolescents were more likely to have a preterm delivery (11.2% vs. 4.9%, $p = 0.04$) and low birth weight infants (19.3% vs. 8.2%, $p = 0.005$) than adults. Adolescents were more likely to be anemic (46% vs. 32%, $p = 0.01$) than adults. However, cesarean section rate was not statistically different between two groups.

Conclusion: This study showed that primiparous adolescents have significantly higher risk of adverse pregnancy outcomes such as preterm delivery, low birth weight infants and anemia as compared to adult primiparas.

Key Words: Adolescent primigravida. Adult primigravida. Obstetric outcome. Teenage pregnancy.

INTRODUCTION

Pregnant adolescents are generally considered to be a high risk obstetric population,¹ although the published evidence is inconclusive and contradictory on many points. According to the PDHS, 40% of women in Pakistan are married by the age of 18 years.²

It has been postulated that if there is an increased risk, it may be because of an inherent biological disadvantage of childbearing during adolescence, adolescents being a socially and economically disadvantaged group, or confounding behavioral factors that are more prevalent among adolescents, such as inconsistent prenatal care.³ One study showed that adolescents, compared with older women, are at increased risk of adverse pregnancy outcomes such as preterm delivery (19% as compared to 4.3%),^{4,5} low birth weight infants (22.8% as compared to 4.3%),^{3,4,6,7} small for gestational age infants,¹ anemia (12.4%

as compared to 1%),³ chorioamnionitis (30.3% as compared to 21.6%)⁸ and sexually transmitted diseases during pregnancy.

However, some studies report that mean birth weight and mean gestational age at delivery are no different for infants born to adolescents and those born to adult women and that adolescents have a lower caesarean section (CS) rate than adults (12.1% as compared to 27.7%).⁹

Anemia represents one of the most significant and common issues in obstetric practice. It is estimated that about 2,150 million people are iron deficient,⁹ and that this deficiency is severe enough to cause anemia in 1,200 million people globally. Iron deficiency is most common type (about 90%). The World Health Organization (WHO) estimates that an average of 56% of pregnant women in developing countries are anemic.¹⁰

As above mentioned studies show conflicting results regarding mean birth weight, preterm deliveries and caesarean section rate in adolescent pregnancies, this study was conducted to get evidence regarding the obstetric outcome in terms of preterm delivery, low birth weight, cesarean section rates and anemia in primigravid adolescents and compare it with older

Department of Obstetrics and Gynaecology Unit-II, Sir Ganga Ram Hospital, Lahore.

Correspondence: Dr. Uzma Naz, House No. 12, Street No. 1, Ittefaq Town, G-12/4, Islamabad-44000.

E-mail: druzmanaz2992@gmail.com

Received: January 22, 2013; Accepted: September 09, 2013.

primigravidas thus explaining the risks of adolescent pregnancy in our clinical setup, which was the aim of this study.

METHODOLOGY

This cohort study was conducted in the Department of Obstetrics and Gynaecology, Sir Ganga Ram Hospital, Lahore, from July to December 2012. One hundred and fifty primigravid adolescents aged less than or equal to 19 years, having antenatal visits before 36 weeks and who had live singleton pregnancy on ultrasound were included in the study after taking informed consent. Similarly, 150 primigravid women aged more than or equal to 20 years, having antenatal visits before 36 weeks and who had live singleton pregnancy on ultrasound were also included in the study after taking informed consent. Diabetic patients, hypertensive patients and patients with cephalocephalic disproportion were excluded. Also, women with fetal congenital anomalies on ultrasound were also excluded.

Patients were called for follow-up as: 4 weekly upto 32 weeks, 2 weekly upto 36 weeks and once weekly till delivery. Obstetric outcome was compared between two groups in terms of gestational age at delivery, infants birth weight, presence of anemia and cesarean section rate. Haemoglobin levels at entry into prenatal care were also obtained and data entered on pre-designed proforma. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 16. Quantitative variables such as gestational age at delivery were calculated by mean and standard deviation and statistical significance was calculated by independent sample t-test for comparing outcome. Qualitative variables such as preterm birth, cesarean section rate, low birth weight infants and presence of anemia were analyzed by calculating frequency and percentages. Statistical significance was calculated by chi-square test for categorical variables to compare proportions and independent t-test for mean value outcome in both groups. A p-value less than 0.05 was considered significant.

RESULTS

The total number of deliveries were 300, 150 among adolescents and 150 among adults. The mean ages of adolescents and adults were 17.35 ± 1.5 and 25.60 ± 3.4 years, respectively (Table I). Obstetric outcomes of both groups are compared in Table II.

Average gestational age at delivery was similar in each group ($p = 0.37$), although more adolescents delivered preterm than adults (11.3% [$n = 17$] vs. 4.6% [$n = 7$], $p = 0.03$).

Adolescents delivered babies with significantly lower birth weight than adults (19.3% [$n = 29$] vs. 8.0% [$n = 12$], $p = 0.04$).

The cesarean section rate was not statistically different between two groups. A majority of women were anemic ($Hb < 11$ g/dL), however, adolescents were more anemic than adults (46% [$n = 69$] vs. 32% [$n = 48$], $p = 0.01$). Adolescents were also more likely to develop severe anemia throughout pregnancy (8.66% [$n = 13$] vs. 3.33% [$n = 5$], $p = 0.05$).

Table I: Mean ages of both groups.

	Adolescents (n = 150)	Adults (n = 150)	p-value
Age (mean \pm SD) years	17.35 \pm 1.5 SD	25.60 \pm 3.4 SD	0.000

Table II: Obstetric outcomes.

Obstetric outcomes	Adolescents (n = 150)	Adults (n = 150)	p-value
Gestational age at delivery Mean \pm SD (weeks)	39.2 \pm 2.1	39.4 \pm 1.8	0.37
Preterm birth (< 37 weeks gestation)	11.3% n = 17	4.6% n = 7	0.03
Low birth weight (2500 g)	19.3% n = 29	8.0% n = 12	0.004
Cesarean section rate	16.6% n = 25	21.33% n = 32	0.29
Anemia	46%	32%	0.01
Hb < 11 g/dL	n = 69	n = 48	
Severe anemia	8.66%	3.33%	0.05
Hb < 7.0 g/dL	n = 13	n = 5	

DISCUSSION

There is much controversy over whether the risks associated with adolescent pregnancy are attributable to biological factors, lifestyles and socioeconomic condition. With the exception of very young adolescents (< 16 years), teenage pregnancy itself is not biologically harmful.¹¹

The objective of this study was to characterize the obstetric outcomes and anemia status of primiparous adolescents and to compare these characteristics with those of their older counterparts. Importantly, all women received care from same setting, all women were primiparous, and all had a live singleton pregnancy. So several potentially confounding variables were eliminated. This allowed more accurate comparisons between study groups. All mothers in both groups were married and hence there was no problem of lack of social support for pregnant teenagers as reported by some studies.¹¹⁻¹⁶

The results demonstrated that the mean gestational age at delivery does not differ significantly between adolescents and adults. However, adolescents were found to be associated with an increased risk of preterm birth and low birth weight babies, which is in keeping with results of several other studies.^{4,16-18} One study showed that adolescents were less likely to have preterm births.¹⁹ However, other studies have shown no increases in preterm delivery and low birth weight

babies.²⁰⁻²² There is general agreement that maternal youth is a risk factor for preterm labour.¹² Hence, adequate maternity care is important especially in our setup in order to screen for biological risks of adolescent pregnancy such as cervical shortness, infections, inadequate nutrition and abuse. Education about these risks should be given and more frequent antenatal visits advised.¹¹

This study showed that cesarean section rate does not differ significantly between adolescents and adults, as shown in some studies.²³ A lot of controversy exists in the literature about the mode of delivery in teenage mothers. Some studies showed that adolescents had a lower cesarean section rate than adults.¹¹ The rate of cesarean section could easily be influenced by the attitude of obstetricians and midwives towards labour and delivery in women and by the attitude of women themselves.

Various studies have reported variable prevalence rates of anemia during pregnancy and it varies from 33% to 75%.²⁴ In this study, majority of the women in both groups were anemic (Hb < 11 g/dL), which may reflect the general state of nutritional deficiency in these women.^{11,25} However, the frequency of anemia was found to be significantly higher in adolescents. This may be explained by their physical immaturity, as these young mothers are still growing and may compete with growing fetus for nutrients. There is also gender bias and depleted iron stores in young girl. Severe anemia (Hb < 7.0 g/dL) was also found to be significantly higher in adolescents. These findings have also been reported by several other studies.^{7,21,23}

The conflicting results about obstetric outcome reported by various studies may partly be explained by the fact that different age groups of teenagers have been included in different studies e.g., 13-19,⁴ 10-19, 13-20 years. Many studies have suggested a normal outcome for the younger teenagers.²³ Secondly, some studies have included multiparas too. Another important reason could be the different kinds of maternity care systems available in different countries.

The limitations of this study are that detailed infant outcomes other than birth weight and gestational age at delivery were not assessed. Further, sample size was small, limiting the ability to draw conclusion about serious but rare or unusual obstetric outcomes, such as perinatal or maternal mortality. The socioeconomic status of the women was not assessed. Exact causes for adverse obstetric outcomes due to multiple factors were not identified as well.

CONCLUSION

This study showed that adolescent pregnancies were significantly more likely to have anemia, low birth weight babies and preterm delivery. However, obstetric and

perinatal complications in this population of pregnant women could be significantly reduced by providing better antenatal care and timely interventions where needed.

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