



A Study on the Adverse obstetrical and perinatal outcome in adolescent mothers associated with first birth

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ABSTRACT

Our study was conducted in RIMS RAIPUR CG between January 2015 and December 2015. All adolescent primigravidae completing 28 weeks of gestation with singleton pregnancy and delivered at our institution were included in the study group. Primigravidae aged between 20 and 25 years were taken as a control group. Mothers having pregnancy complicated with diabetes mellitus, renal disorder, thyroid disorders, and cardiac diseases were excluded from the study. Demographic data, maternal complications like severe anemia, pre-eclampsia, eclampsia, gestational age at delivery, mode of delivery, and postpartum complications were compared. Among fetal complications, low-birth weight, preterm birth, neonatal intensive care unit admission, still birth, and early neonatal death were compared. All the patients were interviewed regarding contraceptive knowledge and its use preceding the pregnancy. Quality antenatal care was received by 80.6% of adolescent mothers. The adolescent mothers had a higher incidence of pre-eclampsia (odds ratio [OR] 2.017 95% confidence interval [CI]: 1.045–3.894, P=0.03), preterm deliveries (OR: 1.655, 95% CI: 1.039–2.636, P=0.03). Among fetal outcomes, the low- birth weight babies (OR: 1.59, 95% CI: 1.016–2.478), low mean birth weight (2,544.4±622.09 g versus 2,701.6±582.51 g), and higher admission to neonatal intensive care unit (OR: 1.957, 95% CI: 1.120–3.417) were significantly associated with adolescent mothers. There was no significant difference found regarding the mode of delivery, still birth, and early neonatal death. With quality antenatal, intranatal, and postnatal care, the obstetric risk of childbirth in adolescent mothers may not be as serious as generally perceived.

KEYWORDS : : teenage, primigravidae, childbirth outcome,

Introduction

Adolescent pregnancy means pregnancy between 10 and 19 years of age. However, statistics comparing the incidence between countries often gives rates per 1,000 adolescent aged 15–19 years. According to WHO, 16 million adolescent mothers give birth annually and nine of every ten adolescent birth belong to low- and middle-income countries. The adolescent birth rate is lowest in Japan and Denmark whereas higher rates are found in Nigeria and Republic of Congo. According to World Bank data of 2013, there were 32 adolescent births for every 1,000 girls aged 15–19 in India. Deeply entrenched practice of child marriage, poor access to health care, poverty, and low literacy are mainly responsible for the high rate of adolescent pregnancy in India. A large multicentric study done by WHO in low- and middle-income countries reported that eclampsia, puerperal infection, preterm birth, low-birth weight, still birth, and early neonatal death were significantly higher among adolescent mothers. It remains a matter of debate as to how much of these obstetrical and perinatal complications are attributable to age as opposed to availability, utilization and quality of health services, educational level, marital status, race, and other socio-demographic factors. Moreover, this difference in adverse outcome may be due to the use of different methodologies by different authors. Adolescent mothers face significant socioeconomic challenges and the public cost of adolescent childbearing is enormous. According to a United Nations report in 2013, the productivity of India would be \$7.7 billion higher if adolescent pregnancy could be prevented. Our objective of the study was to find out the obstetric complications during antepartum, intrapartum, and postpartum period and the perinatal outcome of adolescent primigravidae in India with the changing health scenario.

MATERIALS AND METHODS

Our study was conducted from January 2015 to December 2015, in RIMS RAIPUR CG where more than 1000 deliveries occur annually. All

adolescent primigravidae completing 28 weeks of gestation with singleton pregnancy booked and delivered in our institution as well as referred cases for delivery were included in the study group. Age is taken as the age at delivery. Adult primigravidae of 20 to 25 years of age who delivered next to adolescent mother were taken as a control group. Age between 20 and 25 years were taken as control as this age group is regarded as low risk for childbirth. For each adolescent primigravidae two adult mothers were taken in the control group. Excluded from the study were mothers having multi-fetal gestation, pregnancy complicated with diabetes mellitus, renal disorder, thyroid disorders, and cardiac diseases. The data were collected by using a structured and pre-tested proforma. Demographic data, pregnancy complications like severe anemia, pre-eclampsia, eclampsia, gestational age at delivery (gestational age is calculated from last menstrual period and second trimester sonography), mode of delivery, postpartum complications were compared. Among fetal complications – low-birth weight, preterm, Apgar score at 1 and 5 minutes, neonatal intensive care unit (NICU) admission, still birth, and early neonatal death were recorded. All the patients along with their husband were interviewed about their knowledge and use of contraception preceding the pregnancy. The data were compiled and analyzed using the SPSS 15. For comparison, chi-square test and unpaired t-test were used for qualitative and quantitative data, respectively. Odds ratio (OR) and 95% confidence interval (CI) were used to identify the strength of association. The association was considered significant at P-value ,0.05.

Results

Total 165 adolescent primigravidae fulfilling the inclusion criteria included in the study group and 330 adult primigravidae were taken as control group, respectively. The mean age in adolescent group was 17.72±1.12 years. There was no adolescent mother aged less than 15 years. The mean age in adult mothers was 22.54±2.35 years.

All the mothers were married in both the groups. The mean duration between the marriage and the conception was 4.8 ± 1.2 months in adolescent group and 7.2 ± 1.54 months in adult group. The low level of education was significantly higher in adolescent group in comparison to control group. In our study, approximately 80.6% adolescent mothers received antenatal care. There was no significant difference of antenatal care between adolescent and older mothers. The adolescent mothers had significantly higher incidence of pre-eclampsia in comparison to women aged 20–25 years. ($P=0.03$, OR: 2.017, 95% CI: 1.045–3.894). The mean gestational age at birth was significantly lower among adolescent mothers as compared to the adult mothers. Incidences of severe anemia, eclampsia, antepartum hemorrhage, PPH, and the mode of delivery were similar in both the groups. The incidence of preterm delivery was significantly higher in adolescent group ($P=0.03$, OR: 1.655, 95% CI: 1.039–2.636). The mean birth weight was significantly lower among the adolescent mothers with a P-value of 0.005. The incidence of low-birth weight was also higher in adolescent age group ($P=0.042$, OR: 1.59, 95% CI: 1.016–2.478) and also the NICU admission ($P=0.02$, OR: 1.957, 95% CI: 1.120–3.417). There was no statistical difference found in both the groups regarding low Apgar score, still birth, and early neonatal death. The contraceptive knowledge was present only in 13.94% of adolescent mothers as compared to adult mothers (57.58%). The percentage of ever use of contraceptive methods in adolescent mothers was 4.24%. Both contraceptive knowledge and use were significantly lower in adolescent mothers.

Discussion

Adolescent pregnancy is a public health problem in India and needs to be tackled on a priority basis. In our study, all the pregnancy occurred within marriage, and the majority (80%) received quality antenatal care in our tertiary care hospital in both groups. The percentage of adolescent mothers receiving antenatal care is higher than the previous reported literatures from India. Approximately 80.6% of adolescent mothers had early booking and delivered in our institution and 19.4% of cases referred from the interior areas with sub-optimal antenatal care. Fewer adverse outcomes among adolescents in our study may be due to quality antenatal, intranatal, and postnatal care. The importance of quality maternity care in reducing the adverse outcomes of adolescent pregnancy is highlighted in few reports. Low educational level and poor socioeconomic status were found to be significantly associated with adolescent mother in contrast to the adult group. In a society with low literacy rate, people are likely to follow the age-old social custom of marrying off a girl child at an early age. Poverty and sex bias act as a catalyst for early marriage of girl child. The pre-eclampsia was found to be significantly associated with adolescent mothers. However, no significant difference was found regarding eclampsia in contrast to their studies. The probable explanation is that most mothers received treatment at pre-eclamptic state. Our study did not find any increase in the rate of cesarean section among adolescent mothers. This can be explained that adolescent mothers give birth to small size babies. Our finding with respect to the mode of delivery is contrary to the widely held belief that the adolescent mothers need cesarean delivery. A similar view is expressed in some other studies. We found that adolescent pregnancy was associated with increased risk of preterm births which is consistent with various literatures. The mechanism of preterm labor among adolescent mothers is still unclear. However, one physiological reason is the immaturity of the uterine and cervical blood supply in young mothers which leads to increase in prostaglandin production leading to preterm labor. Another recent view is that, lack of proper menstrual preconditioning among young adolescent interfere with the process of decidualization and trophoblastic invasion that increases the risk of defective deep placentation that leads to preterm deliveries in adolescent primigravidae. This also partly explains the increased rate of pre-eclampsia among young adolescent mothers. Other contributing factors may include low socio-economic status, young maternal age at first delivery, and hypertensive disorders of pregnancy. The incidence of low-birth weight babies in adolescent mothers was significantly higher in

comparison to the mothers of 20–25 years. Being preterm babies, there are also higher incidences of the NICU admission rate. This observation corroborates with various other literatures. In a multicentric study done by WHO in India, it was found that, the still birth and early neonatal death rate were significantly higher among adolescent mothers. While the perinatal outcome in our study does not corroborate with the WHO study probably because of the difference in the level of health care facilities included in their studies. Our study was done in a tertiary care hospital where advanced neonatology facilities are available. The time period interval between the marriage and the conception was found to be less among adolescent mothers in comparison to the adult group. It has been reported that there is increase fertility among the adolescent group. Another contributing factor was low and irregular use of contraceptive in adolescent age group. The contraceptive knowledge and use were lower in adolescent group. The low level of contraceptive knowledge and its use is possibly because of the low level of education and low access to contraceptives in adolescent mothers in comparison to older mothers of 20–25 years of age. The limitation of the study is that, since the study was conducted in a tertiary hospital where high-quality maternal and neonatal care facilities were available the findings may not truly reflect the situation of the whole population.

CONCLUSION

In our experience, Adolescent pregnancy may not be associated with serious obstetrical complications as perceived, if high-quality antenatal, intranatal, and postnatal care are provided. Higher level of education is an important deterrent to early marriage and early childbearing. It is strategically important to delay marriage and pregnancy in adolescent married girls in view of a population explosion that mid- and low-income countries are facing. So, increasing awareness and availability of contraception in addition to quality health care services, a dedicated educational policy aimed at promoting education among girl child seems to be an effective measure to reduce the burden of adolescent pregnancy in the developing world.

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