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Original Research Article

Clinical study on feto-maternal outcome in teenage pregnancy in a tertiary care institute

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ABSTRACT

Background: Pregnancies that occur below the age of 20 years are called teenage pregnancies. Teenage pregnancy is a common public health problem worldwide which is detrimental to the health of both the mother and the new-born. This study aims to evaluate the obstetric and perinatal outcomes of teenage pregnancy in the Indian rural and semi urban population.
Methods: A retrospective observational study was undertaken in the department of obstetrics and gynecology, Mysore Medical College and Research Institute, Mysore, for a period of one year from August 2021 to September 2022. All the teenage mothers during the study period were included in the study. Data was analysed included various maternal parameters, fetal parameters, and the outcome of pregnancy.
Results: Study showed the incidence of teenage pregnancy is 12.6%. About 88.3% were primgravida, 74% were booked cases. 51.6% of the teenage mothers had varying grades of anaemia, 29.09% of teenage mothers had spectra of hypertensive disorders if pregnancy, 27.92% had PROM. Caesarean section rates were 25%, Fetal distress being the most common indication in 47.3% followed by fail induction in 29.8%. Preterm delivery rates were as high as 13.6%. Postpartum complications included postpartum hemorrhage in 2.5%, puerperal pyexia in 1.9%, postpartum eclampsia in 1.38%. Respiratory distress was seen in 17.6% neonates, prematurity in 15.49%, IUGR in 13.6%, 2.99% were stillborn send 3.36% succumbed due to pre-maturity, respiratory distress, and sepsis.
Conclusions: From the present study we infer that the prevalence of teenage pregnancy is still high in rural and semi urban population and they suffered from a significant number of complications in pregnancy including anemia pre-eclampsia and preterm labour, neonatal respiratory distress and early onset sepsis. To surmount these problems a multidisciplinary team involving health and social workers, obstetrician and gynaecologist are required to improve adolescent reproductive health.

Keywords: Teenage pregnancy, Anemia, Neonatal outcome

INTRODUCTION

In recent decade, adolescent pregnancy has become an important health issue in a great number of countries, both developed and developing.[1] World Health Organization (WHO) defines teenage pregnancy as any pregnancy from a girl who is 10 to 19 years of age, age being defined as her age at the time of delivery.[2] The incidence of teenage pregnancy varies dramatically between the different countries, of which 90 percent is contributed by developing countries.[3] Sociodemographic factors surrounding teenage pregnancy are different in developing and developed countries of the world.[4] Factors contributing to the high teenage pregnancy rate in our country are early marriage, social custom, low literacy rate, lack of sex education and non-usage of contraceptive services.

National family health survey-4 2019 2021 revealed that incidence of teenage pregnancy in India were 6.8%. India

has successfully reduced the proportion of teenage pregnancy which was 16% during the NFHS-3 in 2005-2006 and 7.9% in NFHS4 in 2015-2016.[5] Highest prevalence seen in Bihar, West Bengal, Jharkhand, Rajasthan, Assam, Maharashtra, Madhya Pradesh, Gujarat, Tripura, Andhra Pradesh, Uttar Pradesh, Telangana, Karnataka, and Odisha. Teenage pregnancy is associated with series of maternal and fetal complications. Anaemia, pre-eclampsia, eclampsia, preterm delivery, instrumental delivery, increased LSCS rate due to cephalopelvic disproportion and fetal distress are strongly associated maternal complications in teenage pregnancy. Apart from the medical perspective, pregnant adolescent girls also suffer from financial constraints, inability to continue education, and disgrace from society.[6] Fetal complications being prematurity, low birth weight, still birth, asphyxia, respiratory distress, birth trauma.[7] Underdeveloped pelvis in adolescents makes them prone to have CPD and end up in caesarean delivery. As girls are still in growing period, pregnancy induces malnutrition leading to inadequate weight gain and low birth in neonates. Low birth weight and prematurity predisposes such children to several infant and childhood disorders and increased risk of mortality and morbidity.[8] Good antenatal care by medical professional makes a big difference in outcome of teenage pregnancy, care provider should stress upon good nutrition, and anticipate the risks of medical disorders associated with it and intervene at the earliest.

The main objective of the study was to know the incidence, obstetric complications and perinatal outcome associated with teenage pregnancy in a tertiary care institute in the district of Mysore.

METHODS

This retrospective study was conducted in Mysore Medical College and Research Institute in department of obstetrics and gynecology over a period of one year from August 2021 to September 2022 and the data was analyzed.

Inclusion criteria

All pregnant women delivered in Cheluvamba Hospital in Mysore Medical College and Research Institute, Mysore, with age 10-19 years, primigravida/multigravida, and gestational age more than 28 weeks were included.

Exclusion criteria

Patients with age 20 years or more were excluded.

History taken and examination done. Investigations collected i.e. hemoglobin, blood group, RH typing, serology, urine routine, blood sugar. Data collected regarding mode of delivery, whether vaginal delivery or caesarean delivery, full term vaginal delivery or preterm delivery, if LSCS then indication for LSCS, antenatal and postnatal complications, fetal outcome in terms of prematurity, respiratory distress syndrome, low birth weight, still birth, anomalous fetus, NICU admission.

Statistical analysis

The collected demographic information, maternal and neonatal outcome, measures were interred in Microsoft excel sheet and the variables were summarized using number and percentages.

All the data collected were entered into a Microsoft Excel worksheet and analyzed using the statistical software statistical package for the social sciences (SPSS) 28.0.

RESULTS

During the study period from August 2021–September 2022, 10,856 pregnant women were admitted in our hospital for delivery. Out of this teenage pregnant woman were 1368. Hence proportion of teenage pregnancies were 12.6%.

Figure 1 shows that incidence of teenage pregnancy in our institution is 12.6% (1368), and adult were 87.4% (9488), n=10856.

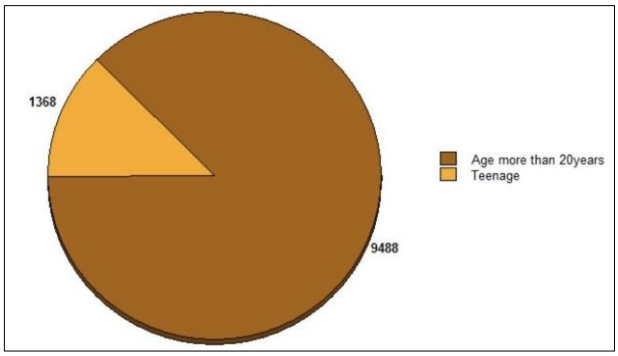

Figure 1: Incidence of teenage pregnancy at MMCRI during the study period.

Out of 1368 women, 1208 (88.3%) were primigravidae, 132 (9.6%) of them were second gravida and 28 (2%) of them were third gravida.

In our study 1012(74%) were booked cases and the remaining 356 (26%) were unbooked as shown in Table 1.

Table 1: Parity status and booking status among the study subjects.

Parameters	Frequency (%)
Gravida	
Primigravida	1208 (88.3)
Second gravida	132 (9.6)
Third gravida	28 (2)
Booking status	
Booked	1012 (74)
Unbooked	356 (26)

During our study period 1026 (75%) teenage mothers had a vaginal delivery, among which 841 (61.4%) had a full term vaginal delivery and 185 (13.6%) had a preterm vaginal delivery.

The caesarean section rate was 25% (n=342). The various indications for caesarean section include fetal distress in 162(47.3%), failed induction in 102 (29.8%), cephalopelvic disproportion in 32 (9.3%), primigravida with breech presentation in 28 (8.1%), non-progress of labour in 7 (2%), antepartum eclampsia in 5 (1.4%) as shown in Table 2.

Table 2: Mode of delivery and indication for caesarean section among the teenage mothers.

Mode of delivery	Frequency (%)
Vaginal delivery	1026 (75)
FTVD	841 (61.4)
PTVD	185 (13.6)
Caesarean section	342 (25)
Fetal distress	162 (47.3)
Failed induction	102 (29.8)
Cephalopelvic disproportion	32 (9.3)
Primigravida with breech presentation	28 (8.1)
Non progress of labour	7 (2)
Antepartum eclampsia	5 (1.4)
Others	6 (1.7)

In our study 983 patients i.e. 71.8% had some form of antenatal complication and the rest 383 (28.2%) had an uneventful maternal and perinatal outcome.

Varying degrees of anemia was seen in 706 (51.6%) of the teenage mothers which is one of the most prevalent complication. Mild anemia was seen in 531 (38.81%), moderate anemia in 118 (8.62%), severe anemia in 43 (3.14%), very severe in 14 (1.02%). The other complications were hypertensive disorders of pregnancy seen in 398 (29.09%) of the study subjects, among which gestational HTN was seen in 150 (10.96%), preeclampsia without severe features in 98 (7.16%), preeclampsia with severe features in 104 (7.6%), chronic HTN with superimposed preeclampsia in 18 (1.09%) and eclampsia in 46 (3.36%) of them. The other complications include PROM seen in 382 (27.92%), GDM in 66 (4.82) and placental abruption in 17 (1.24%) as shown in Table 3. It was noted that among the 983 patients who had some form of complication, 460 (46.8%) had multiple complications.

In our study postpartum complications were seen in 99 (7.2%) of the patients. Postpartum hemorrhage was seen in 35 (2.5%) of them, puerperal pyrexia in 26 (1.9%), postpartum eclampsia in 19 (1.38%), postpartum blues in 17 (1.24%) and retained placenta in 2 (0.14%) as shown in Table 4.

Table 5 shows the perinatal outcome in teenage pregnancy. Respiratory distress was seen in 242 (17.6%), prematurity in 212 (15.49%), intrauterine growth retardation in 183 (13.6%), birth asphyxia in 97 (7.09%), meconium aspiration syndrome in 65 (7.75%).

The perinatal mortality rate in our study was 63.5 per 1000 child births. This included 41 (2.99%) still births and 46 (3.36%) early neonatal deaths.

Table 3: Antepartum complications in teenage pregnancy.

Antepartum complications	Frequency (%)
Anemia	706 (51.6)
Mild	531 (38.81)
Moderate	118 (8.62)
Severe	43 (3.14)
Very severe	14 (1.02)
Hypertensive disorders of pregnancy	398 (29.09)
Gestational hypertension	150 (10.96)
Preeclampsia (without severe features)	98 (7.16)
Preeclampsia with severe features	104 (7.6)
Chronic HTN with superimposed PE	18 (1.09)
Eclampsia	46 (3.36)
PROM	382 (27.92)
Gestational diabetes milletus	66 (4.82)
Abruptio placentae	17 (1.24)

Table 4: Postpartum complications in teenage pregnancy.

Postpartum complications	Frequency (%)
Postpartum hemorrhage	35 (2.5)
Puerperal pyrexia	26 (1.9)
Postpartum eclampsia	19 (1.38)
Postpartum blues/depression	17 (1.24)
Retained placenta	2 (0.14)

Table 5: Neonatal outcome in teenage pregnancy.

Neonatal complications	Frequency (%)
RDS	242 (17.6)
Prematurity	212 (15.49)
IUGR	187 (13.6)
Birth asphyxia	97 (7.09)
MAS	65 (4.75)
Perinatal mortality	87 (6.35)

DISCUSSION

Teenage pregnancy exposes mothers to many health related complications and newborns to poor birth outcome. The incidence though falling continues to be sizable especially in the developing countries of the world.[9,10]

Early age at marriage is one of the determinants of teenage pregnancy in our society. Teenage constitutes a "high risk group" in reproductive terms because of the assumed double burden of reproduction and growth.

The incidence of teenage pregnancy in our institute was 12.6% which is very high compared to the national incidence given by the NFHS 4 which was 6.8%. This is attributed to the fact that our institute being a tertiary care centre caters a high number of high risk cases referred from other peripheral centers, hence the higher incidence. Our results are comparable to a similar study conducted by Arpital et al.[13]

In our study the vaginal delivery rate was 1026 (75%), and the caesarean rates were. 342 (25%). In fact, adolescent women are at the stage of physical growth, with immature reproductive system, and the incidence of cephalopelvic disproportion in adolescent pregnancy was higher than that of adult women. More preterm delivery and lower fetal weight was conducive for the adolescent women to make vaginal delivery.

Adverse outcome of teenage pregnancy arises not only from physical and medical causes associated but also depends on individual, family, social, cultural, economic factors besides lack of access to health care, contraception, resources, and education.

Pregnant adolescents have a greater risk of anemia as higher iron intake is essential for a particular state of rapid growth where major biological modifications are in process. This can lead to iron deficiency, resulting in physical and cognitive damage to both adolescents and fetuses.[14,15] In our study the prevalence of anemia was 51.6% (mild-38.81%, moderate- 8.62%, and severe 3.14%). As per a cross-sectional study conducted by Pinho-Pompeu et al in Brazil over nine years (2005-2013) including pregnant women of age 10-19 years, it is noted that the prevalence of anemia in these women was 41.27% (189), of which 65.60% were mildly anemic, 33.86% were moderately anemic, and 0.52% were severely anemic.[16]

Adolescent mothers are prone to preeclampsia, a progressive hypertensive disorder of pregnancy that can present with multiorgan involvement, leading to adverse maternal and perinatal consequences, particularly for primigravid adolescent females.[17] Preeclampsia can be correlated secondary to an immature uterus and the lack of a regular ovulatory menstrual cycle, which can cause defective decidualization, leading to faulty deep placentation causing the remodeling of spiral arteries, eventually leading to preeclampsia.[18] In our study 29.09% (n=398) of them had various spectra of hypertensive disorders of pregnancy (HDP). It is comparable to a study conducted by Medhi et al where the incidence of HDP in adolescent women was 11.52% compared to adult women (6.06%).[19]

In our study PROM was seen in 382 (27.92%) of the teenage mothers. Adolescent females are more prone to PROM as they have immature uterine and cervical blood circulation, making them more prone to underdiagnosed or diagnosed infections leading to PROM by increasing inflammatory markers such as interleukins and prostaglandins, leading to chorioamniotic and decidual inflammation. Marković et al conducted a prospective study over four year including 150 women of age 13-19 in one group and the rest of the 150 women aged 20-35 in another group. The findings of this study showed that adolescent females had significantly high PROM.[20]

Neonatal complications in our study included respiratory distress in 242 (17.6%), prematurity in 212 (15.48%). Ogawa et al. studied the association between adolescent pregnancy and adverse outcomes in a multicenter cross-sectional study over six years (2005-2011) in Japan among 30,831 women under 25 years of age with a singleton pregnancy and noted that low Apgar scores were significantly higher in adolescent mothers as compared to women aged 20-24 years.[22]

Vale de Almeida et al evaluated the association between teen pregnancy and prematurity in 23,894 postpartum women and their newborn infants and found out that younger adolescents had the highest risk of spontaneous prematurity compared to older adolescents.[23]

In our study the perinatal mortality rate was 63.5 per 1000 child births. This included 41 (2.99%) still births and 46 (3.36%) early neonatal deaths. As per a study conducted in Missouri, the risk of intrapartum stillbirth is four times and 50% higher in older adolescent pregnant females than in adult pregnant women. The biological immaturity of the young adolescent who is still developing can trigger fetal-maternal rivalry for nutrients as the pregnancy proceeds, hence jeopardizing fetal growth, development, and survival as the pregnancy progresses.[24]

CONCLUSION

The prevalence of teenage pregnancy during our study period was high (12.6%) compared to the national prevalence (6.8%). Teenage mothers in rural and semi urban population had significant number of complications in pregnancy including anemia, pre- eclampsia and preterm labour compared to primigravidae more than 19 years. Maternal morbidity also more due to Increased operative interference, higher rate of LSCS, higher number of NICU admissions. The health care provider must consider the adolescent pregnancy as high risk and the teenagers need to be educated for more number of antenatal visits for screening tests so that various complications be assessed at an earlier time for appropriate management. A multidisciplinary approach involving educationists, health workers, social workers and obstetrician and gynecologist is required to improve the adolescent's reproductive health.

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