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AN OBSERVATIONAL STUDY ON MATERNAL AND PERINATAL OUTCOME IN TEENAGE PRIMIGRAVIDAE AS COMPARED TO PRIMIGRAVIDAE AGED 20-29 YEARS IN PURBA MEDINIPUR DISTRICT HOSPITAL OF WEST BENGAL

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ABSTRACT

Introduction: Pregnancy in a girl aged between 10-19 years is adolescent or teenage pregnancy. In developing countries like India, early marriages and early pregnancy are the accepted cultural norms of our society. Teenage pregnancies are more common in Indian population with low socio-economic status, due to lack of education, lack of awareness about complications and various other factors.

Aim: To promote and ensure maternal and fetal well being in teenage pregnancies in rural areas of West Bengal.

Materials and Methods: A hospital based prospective case control study was conducted with 400 patients to evaluate outcome of primigravidae teenage pregnancy compared to primigravidae of age 20-29 years. The study was done at a tertiary care centre in the Department of Obstetrics & Gynaecology, Purba Medinipur District Hospital, Tamluk (West Bengal) on attending OPD/IPD. The study duration was 18 months (from 10th March 2019 to 10th September 2020). The patients included in this study were allocated into following two groups:

Teenage primigravida: 200 primigravida patients in the age group of 13-19 years.

Adult primigravida: 200 primigravida patients in the age group of 20- 29 years.

Result: In this study, in Teenage primigravidae group, delivery route was Lower Segment Caesarean Section (LSCS) in 108 (54%) patients and Vaginal delivery was performed in 92 (46%) patients. Among vaginal delivery, induction delivery was performed in 9 (4.5%) patients while spontaneous and instrumental delivery were performed in 75 (37.5%) and 8 (4%) patients respectively. In Adult primigravidae group, delivery route was LSCS in 38 (19%) patients while Vaginal delivery was performed in 162 (81%) patients. Among vaginal delivery, induction delivery was performed in 4 (2%) patients while spontaneous and instrumental delivery were performed in 150 (75%) and 8 (4%) patients respectively. Incidence of LSCS was significantly

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more in Teenage primigravidae group compared to Adult primigravidae group as per Chi-Square test ($p<0.05$). It was observed in our study that in Teenage primigravidae group, 132 (66%) patients had anemia while 40 (20%) and 27 (13.5%) patients developed Pregnancy Induced Hypertension (PIH) and Postpartum Haemorrhage (PPH) respectively. 24 (12%) and 21 (10.5%) patients had pre-eclampsia and eclampsia respectively. 16 (8%) and 12 (6%) patients had Antepartum Haemorrhage (APH) and Intrauterine Growth Restriction (IUGR) respectively. In Adult primigravida group, 64 (32%) patients had anemia while 16 (8%) and 10 (5%) patients developed PIH and PPH respectively. 8 (4%) and 5 (2.5%) patients had Pre-eclampsia and Eclampsia respectively. 4 (2%) patients each had APH and IUGR. Incidence of maternal complications was significantly more in Teenage primigravidae group compared to Adult primigravidae group as per Chi-Square test ($p<0.05$).

Conclusion: Teenage pregnancy is a multifaceted problem; it demands multi-dimensional solutions. Teenage pregnancies are more common in populations with low socio-economic status, due to lack of education, awareness of complications of teenage pregnancies and various other factors. Hence, awareness should be created and various programmes should be taken up to educate mainly the poor at our tertiary setup. As early marriages cannot be prevented in our culture, creating awareness on late conceptions is of utmost importance.

Keywords: Teenage pregnancy, Primigravidae, Maternal and Perinatal Outcome.

INTRODUCTION

Pregnancy in a girl aged between 10 and 19 years is adolescent or teenage pregnancy. In developing countries like India, early marriage and early pregnancy are the accepted cultural norms of our society.[1] In India, 18.2% of women aged between 20 and 24 years were married by the age of 15 years and 47.4% by the age of 18 years. 16% of adolescents between 15 and 19 years have begun childbearing.[2]

Teenage births result in health consequences; children are more likely to be born pre-term, have low birth weight and higher neonatal mortality, while mothers experience greater rates of post-partum depression and are less likely to initiate early breastfeeding.[3] Teenage mothers are less likely to complete high school, are more likely to live in poverty, and have children who frequently experience health and developmental problems. Understanding the risk factors for teenage pregnancy is a pre-requisite for reducing rates of teenage motherhood. Various social and biological factors influence the odds of teenage pregnancy; these include exposure to adversity during childhood and adolescence, a family history of teenage pregnancy, conduct and attention problems, family instability and low educational achievement.[4]

Pregnancy in teenage girls is generally considered to be a very high-risk event, because they are physically and psychologically immature for reproduction. In addition, there are some extrinsic factors such as inadequate prenatal care, illiteracy and poor socio-economic conditions that affect the outcome of pregnancy. Several medical complications like preterm birth, poor maternal weight gain, pregnancy-induced hypertension, anaemia and sexually transmitted diseases are strongly associated with teenage pregnancy[5].

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Teenage pregnancies are more common in Indian populations with low socio- economic status due to lack of education, awareness of complications of teenage pregnancies and various other factors. Hence, awareness should be created and various programmes should be taken up to educate the poor in our rural setup. As early marriages cannot be prevented in our culture, so, possibly creating awareness on late conceptions is of utmost importance. Hence, the present study was done at our tertiary care centre to promote and ensure maternal and fetal well-being in teenage pregnancies and their outcome after period of viability in primigravidae teenage pregnancy compared to primigravidae of age 20- 29 years.

AIMS AND OBJECTIVES

AIM: To promote and ensure maternal and fetal well-being in teenage pregnancies in rural areas of West Bengal.

OBJECTIVES:

PRIMARY OBJECTIVE

- To study the outcome after period of viability in primigravidae teenage pregnancy compared to primigravidae of age 20- 29 years.

SECONDARY OBJECTIVE

- Comparison between teenage primigravidae with primigravidae of age 20- 29 years with respect to maternal and fetal complications
- Incidence of primigravidae teenage pregnancy

MATERIAL AND METHODS

A hospital based prospective case control study was conducted with 400 patients to evaluate the outcome of primigravidae teenage pregnancy compared to primigravidae of age 20-29 years. The patients were allocated into following two groups:

- Teenage primigravida: 200 primigravidae patients in the age group of 13-19 years
- Adult primigravida: 200 primigravidae patients in the age group of 20- 29 years

Study design: A hospital based prospective case control study

Study Duration: 18months (from 10th March 2019 to 10th September 2020)

Study area: The study was done in the Department of Obstetrics and Gynaecology, Purba Medinipur District Hospital, Tamluk, West Bengal on patients attending OPD/IPD.

Study population: All patients attending OPD/IPD of our tertiary care hospital selected from primigravidae pregnant mothers, who were admitted for confinement in this hospital. The age group of mothers were restricted between 13 to 29 years of age who fulfilled the inclusion criteria.

Primigravidae women were selected to eliminate the influence of parity. Age between 20 and 29 years was considered since this age group is generally regarded as safe for childbirth.

Sample size: 400 patients

Inclusion criteria:

1. Age of patients 13 to 29 years

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2. Primigravida

Exclusion criteria:

1. Severe medical disorders, moribund patient.
2. Women with major illness during pre- pregnant state.
3. Ectopic pregnancy
4. Early pregnancy loss (abortions)
5. Multigravidae
6. Perinatal complications occurring after 48 hours of delivery.

RESULT AND DISCUSSION

A hospital based prospective; case control study was conducted with 400 patients to evaluate outcome of primigravidae teenage pregnancy compared to primigravidae of age 20-29 years. The patients were allocated into following two groups:

- Teenage primigravida: 200 primigravidae patients in the age group of 13-19 years.
- Adult primigravida: 200 primigravidae patients in the age group of 20-29 years,

In the present study, majority of the patients (95%) in Teenage primigravida group were in the age group of 17-19 years followed by 5% in the age group of 13-16 years. The mean age of patients in Teenage primigravida group was 17.86 ± 1.01 years. Majority of the patients (52.5%) in Adult primigravida group were in the age group of 20-24 years followed by 47.5% in the age group of 25-29 years. The mean age in Adult primigravida group was 24.39 ± 2.86 years. There was significant difference between the groups as per Student t-test ($p<0.05$). This is similar to the study of **Sarel Set al**[6] , the prospective study assessing maternal outcome during pregnancy and labour in teenage pregnancies found maximum number of teenage mothers belonging to the age group of 16-19 years (99%). In teenage mothers, more cases (59%) were related to lower socioeconomic status than adult mothers (33%).

Habitu YA et al[7] cross-sectional study assessing the prevalence and associated factors of teenage pregnancy found 514 female adolescents 15-19 years of age with a response rate of 95%. Majority, 157 (30.5%), of the respondents were 19 years old, with the median inter-quartile range of 03 years.

In our study, in Teenage primigravida group, 88 (44%) and 58 (29%) patients were educated upto primary and secondary levels respectively while 13 (6.5%) studied till higher secondary. 41 (20.5%) patients had no education. In Adult primigravida group, 28 (14%) and 32 (16%) patients were educated upto primary and secondary levels respectively while 42 (21%) and 68 (34%) patients studied till higher secondary and graduation respectively. 30 (15%) patients had no education. There was significant difference between the groups as per Chi-Square test ($p<0.05$).

It was observed in the present study that majority of patients in Teenage primigravida group were from lower class (68%) followed by middle class (31%) and upper class (1%). Majority of patients in Adult primigravida group were from middle class (74%) followed by lower class (16%) and upper class (10%). There was significant difference between the groups as per Chi-Square test ($p<0.05$). This is comparable to **Dutta I et al**[8] prospective case control study which

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found that most of teenage mothers (53.5%) had no primary education as compared to 8.1% in among adults and that majority of the population i.e 43.75% of teenagers belonged to low socio-economic class.

Sarel S et al[6] prospective study found that majority of cases (70%) of teenage mothers were illiterate as compared to adult mothers in which 25% were illiterate.

It was observed in our study that 74 (37%) patients in Teenage primigravida group were booked while 126 (63%) patients were un-booked. 188 (94%) patients in Adult primigravida group were booked while 12 (6%) patients were un-booked. Un-booked cases were significantly more in Teenage primigravida group compared to Adult primigravida group as per Chi-Square test ($p<0.05$). This is concordant to the studies of **Dutta I et al**[8] prospective case control study evaluating the maternal and fetal outcomes/complications in Teenage primigravidae as compared to Adult primigravidae, and found un-booked cases to be significantly more in teenage primigravida group as compared to that of adults.

Abebe AM et al[9] study determining adverse obstetrical and perinatal outcomes of teenage pregnancy found that more than three-quarters of the study populations had at least one antenatal care (ANC) visits during their current pregnancy time, and teenagers had lower ANC follow-up than adults, 77.3% and 83.2%, respectively.

In the present study, 8 (4%) patients in Teenage primigravida group had haemoglobin values <7 g/dL while 124 (62%) and 68 (34%) patients had haemoglobin values 7-11 g/dL and >11 g/dL respectively. 2 (1%) patients in Adult primigravida group had haemoglobin values <7 g/dL while 62 (31%) and 136 (68%) patients had haemoglobin values 7-11 g/dL and >11 g/dL respectively. Incidence of anemia was significantly higher in Teenage primigravida group compared to Adult primigravida group (66% vs. 32%) as per Chi-Square test ($p<0.05$). This is consistent with the **Dutta I et al**[8] prospective case control study which observed that mean Haemoglobin levels were significantly less in Teenage primigravida group.

Rita D et al[10] prospective study noted that incidence of anaemia in teenage mothers is more as high as 79.2%, pre-eclampsia contributing to 37% and eclampsia 13.6% which is significantly high.

In our study, in Teenage primigravida group, delivery route was Lower Segment Caesarean Section (LSCS) in 108 (54%) patients and Vaginal was performed in 92 (92%) patients. Among vaginal delivery, induction delivery was performed in 9 (4.5%) patients while spontaneous and instrumental delivery were performed in 75 (37.5%) and 8 (4%) patients. In Adult primigravida group, delivery route was LSCS in 38 (19%) patients and Vaginal was performed in 162 (81%) patients. Among vaginal delivery, induction delivery was performed in 4 (2%) patients while spontaneous and instrumental delivery were performed in 150 (75%) and 8 (4%) patients. Incidence of LSCS was significantly more in Teenage primigravida group compared to Adult primigravida group as per Chi-Square test ($p<0.05$). This is in concordance to the **Dutta I et al**[8] prospective case control study which found that incidence of LSCS was significantly more among teenage primigravida (43.75%) as compared to adults (20%). There were lower number

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of normal vaginal deliveries (46.2%) in teenage primigravidaes as compared to adult primigravidae (73.75%).

Pun KD et al[11] cross sectional study was done to find out the outcomes of adolescent pregnancy at Kathmandu Univeristy Hospital, Dhulikhel Hospital, Kavre. The authors observed that normal delivery was more common among adolescent (77.4%) as compared with young mothers (74.6%). Caesarean section rates were more common among the young mothers, 21.7% compared with 19.6% among the adolescents. Instrumental delivery with vacuum or forceps was found almost equal in both the groups.

It was observed in the present study that 112 (56%) patients in Teenage primigravida group had term delivery while the timing of delivery in 60 (30%) and 28 (14%) patients was preterm and post term respectively. 156 (78%) patients in Adult primigravida group had term delivery while the timing of delivery in 22 (11%) patients each was preterm and post term. There was significant difference between the groups as per Chi-Square test ($p<0.05$). Similar observations in the **Abebe AM et al**[9] study observed hat Episiotomy was performed for more than one-quarter of the teenager's delivery and about 12% of adult delivery. In relation to the gestational age at delivery, 14 (4.5%) and 29 (9.4%) of the teenage and adult had post-term delivery respectively.

It was observed in our study that in Teenage primigravida group, 132 (66%) patients had anemia while 40 (20%) and 27 (13.5%) patients developed Pregnancy-induced hypertension (PIH) and Postpartum haemorrhage (PPH) respectively. 24 (12%) and 21 (10.5%) patients had pre-eclampsia and eclampsia respectively. 16 (8%) and 12 (6%) patients had Antepartum haemorrhage (APH) and Intrauterine growth restriction (IUGR) respectively. In Adult primigravida group, 64 (32%) patients had anemia while 16 (8%) and 10 (5%) patients developed PIH and PPH respectively. 8 (4%) and 5 (2.5%) patients had pre-eclampsia and eclampsia respectively. 4 (2%) patients each had APH and IUGR. Incidence of maternal complications was significantly more in Teenage primigravida group compared to Adult primigravida group as per Chi-Square test ($p<0.05$). This finding was consistent with **Dutta I et al**[8] prospective case control study which found that incidence of antenatal complications was significantly more associated with teenage primigravida group (68.8%) as compared to that in adult primigravida group (18.1%). Anaemia was the most common complication in teenagers (68.75%) as compared to that in adults (33.75%), followed by PIH. Incidence of failed induction (20%) and foetal distress (68.5) were associated more significantly with teenage primigravida.

Sarel S et al[6] prospective study observed that antepartum and postpartum complications were much higher in teenage mothers as compared to adult mothers. Antenatal gestational hypertension (GHT) was present in 2% of cases, preeclampsia 4%, eclampsia 3%, APH 4% and IUGR 4%.

Vijayalakshmi C[12] prospective study reported that PIH, Anemia, Abruptio placentae, PROM, Oligohydramnios were observed in higher percentage among teenage pregnancies as compared to primigravida within the age group of 20-29 years. Anemia (67.8%) was the most commonly observed complication in both groups followed by PIH which was 29.2%.

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In the present study, the mean birth weight of neonates was significantly lower in Teenage primigravida group compared to Adult primigravida group as per Student t-test (2627.17 ± 678.14 gms vs. 2948.71 ± 545.39 gms; $p<0.05$). Similar observations were noted in the **Dutta I et al**[8] prospective case control study which observed incidence of Low birth weight to be significantly more in teenage group (29.2%) as compared to that in adults (16.6%).

The study of **Pun KD et al**[11] showed that the adolescent mothers had higher prevalence of low birth weight (28% versus 25.7%) compared to 20-24 years age group.

In our study, the mean APGAR Score at 1 min was 6.20 ± 0.99 and 7.27 ± 0.89 in Teenage primigravida group vs Adult primigravida group respectively. The mean APGAR Score at 5 mins was 7.79 ± 0.84 and 8.91 ± 0.90 in Teenage primigravida group vs Adult primigravida group respectively. There was significant difference between the two groups as per Student t-test ($p<0.05$). This is similar to the **Abebe AM et al**[9] study which reported severe neonatal condition to be more pronounced in teenage groups than the adults, which was about 2.98 times more likely (AOR: 2.98; 95% CI, 1.25–7.14).

It was observed in the present study that in Teenage primigravida group, 66 (33%) neonates required NICU Admission while 61 (30.5%) and 29 (14.5%) neonates developed Birth asphyxia and Meconium-stained amniotic fluid (MSAF) respectively. 26 (13%) and 22 (11%) neonates had Hyperbilirubinemia and Meconium aspiration syndrome (MAS) respectively while 7 (3.5%) and 5 (2.5%) neonates had Respiratory distress syndrome (RDS) and Sepsis respectively. In Adult primigravida group, 21 (10.5%) neonates required NICU Admission while 18 (9%) and 15 (7.5%) neonates developed Birth asphyxia and MSAF respectively. 13 (6.5%) and 9 (4.5%) neonates had Hyperbilirubinemia and MAS respectively while 5 (2.5%) and 1 (0.5%) neonate had RDS and Sepsis respectively. Incidence of neonatal morbidity was significantly more in Teenage primigravida group compared to adult primigravida group as per Chi-Square test ($p<0.05$). This is comparable to the **Dutta I et al**[8] study which reported that 29.2% of neonates who belonged to teenage mothers had birth asphyxia and hence they required neonatal resuscitations as compared to 7.3% neonates in adult group. While 10% neonates who belonged to teenage mothers had neonatal hyper-bilirubinemia as compared to 4.9% among adult mothers. 31.7% of teenage neonates required NICU admissions as compared to 12.27% neonates of adult mothers.

Rita D et al[10] prospective study showed that neonatal outcome is poor in teenage mothers (10.26%) as compared to adult mothers, low birth weight 12.5% mainly contributing to morbidity which is significant compared to mothers more than 19 years, 8.4% being NICU admission and 2% being perinatal mortality, which included still births.

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CONCLUSION

Since teenage pregnancy is a multifaceted problem, it demands multi-dimensional solutions. Teenage pregnancies are more common in populations with low socio-economic status, due to lack of education, awareness of complications and various other factors. Hence, awareness should be created and various programmes need to be taken up to educate mainly the poor at our tertiary set up. As early marriages cannot be prevented in our culture, so, possibly creating awareness on late conceptions is of utmost importance.

Socio-economic development and progress of any country depends on the healthy adolescent size. Healthier the adolescent, healthier will be the future generations and the nation. Hence adolescents require our special attention.

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Table 1: Distribution of patients according to Booking Status

Booking Status	Teenage primigravida		Adult primigravida		p Value
	N	%	N	%	
Booked	74	37%	188	94%	
Unbooked	126	63%	12	6%	
Total	200	100%	200	100%	<0.05

Table 2: Distribution of patients according to Hemoglobin values

Haemoglobin	Teenage primigravida		Adult primigravida		p Value
	N	%	N	%	
<7 g/dL	8	4%	2	1%	
7-11 g/dL	124	62%	62	31%	
>11 g/dL	68	34%	136	68%	<0.05
Total	200	100%	200	100%	

Table 3: Distribution of patients according to Mode of Delivery

Mode of Delivery		Teenage primigravida		Adult primigravida		p Value
		N	%	N	%	
LSCS		108	54%	38	19%	
Vaginal	Induction	9	4.5%	4	2%	
	Spontaneous	75	37.5%	150	75%	
	Instrumental	8	4%	8	4%	
Total		200	100%	200	100%	<0.05

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Table 4: Distribution of patients according to Maternal Complications

Maternal Complications	Teenage primigravida		Adult primigravida		p Value
	N	%	N	%	
Anemia	132	66%	64	32%	<0.05
PIH	40	20%	16	8%	
PPH	27	13.5%	10	5%	
Pre-eclampsia	24	12%	8	4%	
Eclampsia	21	10.5%	5	2.5%	
APH	16	8%	4	2%	
IUGR	12	6%	4	2%	

Table 5: Distribution of patients according to Timing of Delivery

Timing of Delivery	Teenage primigravida		Adult primigravida		p Value
	N	%	N	%	
Term	112	56%	156	78%	<0.05
Preterm	60	30%	22	11%	
Post term	28	14%	22	11%	
Total	200	100%	200	100%	

Table 6: Comparison of Neonatal morbidity between groups

Neonatal morbidity	Teenage primigravida		Adult primigravida		p Value
	N	%	N	%	
NICU Admission	66	33%	21	10.5%	<0.05
Birth asphyxia	61	30.5%	18	9%	
MSAF	29	14.5%	15	7.5%	
Hyperbilirubinemia	26	13%	13	6.5%	
MAS	22	11%	9	4.5%	
RDS	7	3.5%	5	2.5%	
Sepsis	5	2.5%	1	0.5%	