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Original Research Article

Retrospective Comparative Assessment of Maternal Outcome in Teenage Pregnancy

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Conflict of interest: Nil

Abstract

Aim: The objective of the study was to evaluate the maternal outcomes of teenage pregnancy in a tertiary care teaching hospital.

Material & Methods: A retrospective comparative study was conducted in the Department of Obstetrics and Gynecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar, India. The objective was to evaluate the maternal outcomes of teenage pregnancy. For each case next 3 consecutive singleton deliveries in the age group of 20-30 year were selected as controls. **Results:** The total number of deliveries during the study period was 5551, of which 266 (4.7%) were teenage pregnancies. After following the exclusion criteria, 250 teenage mothers remained in the study. Reasons for exclusion were pre-existing medical disorders (n = 6) and incomplete records (n = 4). The incidence of birth asphyxia, respiratory distress syndrome and neonatal hyper bilirubinemia were significantly more in babies born to teenage mothers.

Conclusion: Teenage pregnancy was associated with a significantly higher risk of PIH, PET, eclampsia, premature onset of labor, fetal deaths and premature delivery. Increased neonatal morbidity and mortality were also seen in babies delivered to teenage mothers. Younger teenager group (≤17 years) was most vulnerable to adverse obstetric and neonatal outcomes.

Keywords: Neonatal outcome; Obstetric outcome; Teenage pregnancy.

Introduction

Adolescence includes period between 10 and 19 years of age, which comprises more than 20% of the world population. Annually, about 16 millions adolescent women give birth, accounting 11.0% of all births worldwide [1]. Teenage pregnancy limits many social rights of adolescent girls, mainly education, and should be considered as a violation of human rights and children's right in the first place [2].

Although fertility rates in adolescents have declined since 1990, progress has slowed in this century, mainly in sub-Saharan Africa and Latin America, where about half and one third of women give birth before the age of 20, respectively [3-4]. Pregnancy in adolescence has been associated with an increased risk of adverse pregnancy outcomes such as preterm birth [5-10], low birth weight (LBW) [5-10], perinatal death [11],

obstructed labor [12], and maternal deaths [5]. However the evidence is still controversial; the extent to which the observed associations were caused by the biological immaturity of the adolescent mothers, or were confounded by their frequently poor socioeconomic conditions and lack of health care is still a matter of debate [13-16].

A high fertility rate, social customs, poverty and ignorance make early marriage a common feature in this part of the world. The teenage period itself constitutes a high risk group requiring high priority services. It is well known that teenagers face greater risks of pregnancy than the women in their adulthood. [17-18] There is paucity of recent data regarding the outcome of teenage pregnancy from this region. In the present study we have evaluated the maternal outcomes of teenage pregnancies in a tertiary care hospital.

Material & Methods:

A retrospective comparative study was conducted in the Department of Obstetrics and Gynecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar, India. The objective was to evaluate the maternal outcomes of teenage pregnancy. Teenage pregnancy was defined as pregnancy occurring between the maternal ages of 13-19 completed years at delivery. All teenage mothers attending the Hospital for delivery were taken up consecutively as cases. For each case next 3 consecutive singleton deliveries in the age group of 20-30 year were selected as controls.

Methodology

Detailed medical, obstetric and neonatal information was recorded on a predesigned proforma. Literacy was defined as attending primary school education and ability to read and write in local language. Adequate antenatal care (ANC) was defined as the presence of all the following criteria *viz.*, (1) ≥3 antenatal checkups by a qualified medical personnel, and (2) receipt of 2 doses of tetanus toxoid and iron and folic acid supplementation during pregnancy. Exclusion criteria included (1) mothers with major illnesses existing from pre-pregnant state which could have adversely affected the outcome of pregnancy, *viz.,* heart or kidney disease, bronchial asthma, diabetes mellitus, hypothyroidism, connective tissue disorders or hypertension, and (2) incomplete records. Obstetric complications compared between the two groups were anemia, pregnancy induced hypertension (PIH), preeclamptic toxemia (PET), eclampsia, gestational diabetes, oligo/polyhydramnios, antepartum hemorrhage (APH), premature onset of labor (POL) and presence of chorioamnionitis.

Details of delivery and postnatal period were noted. In newborns anthropometric measurements recorded within 24 hours of birth were birth weight, crown-heel length (CHL), head circumference (HC), chest circumference (CC) and mid arm circumference (MAC). Gestational assessment was done from history (calculated from first day of last menstrual period), fetal USG, if available, and clinical assessment by modified Ballard Score.[3] Neonatal morbidities assessed were birth asphyxia, birth trauma, sepsis, meconium aspiration syndrome (MAS), congenital pneumonia, respiratory distress syndrome (RDS), neonatal hyper bilirubinemia and congenital anomalies. Mothers and babies were examined twice daily for development of any complications till discharge.

Data were analyzed by commercial statistical software package SPSS 10. Statistical significance was calculated by Chi square (χ^2) test and Student's't' test. P value less than 0.05 was taken as statistically significant.

Results:

The total number of deliveries during the study period was 5551, of which 266 (4.7%) were teenage pregnancies. After following the exclusion criteria, 250 teenage mothers remained in the study. Reasons for exclusion were pre-existing medical disorders (n = 6) and incomplete records (n = 4). For statistical analysis the cases were categorized into 2 subgroups; ≤ 17 yr (group A) and 18-19 yr (group B). Demographic characteristics are summarized in table 1.

Obstetric outcome of teenage pregnancy is shown in table 2. Anemia was found to be widely prevalent in both the groups. The frequencies of PIH, PET, eclampsia and POL were found to be significantly higher in teenage mothers. Stillbirth was more common in teenage group.

Table 3 The incidence of birth asphyxia, respiratory distress syndrome and neonatal hyper bilirubinemia were significantly more in babies born to teenage mothers. Maximum affection was observed in group A. Neonatal mortality was highest (10%) in group A. The most common cause of neonatal mortality was prematurity followed by perinatal asphyxia.

Table 1. Demographic Characteristics of Study Subjects

Variables	**n=250**		**Group A ≤17 yr (n=110)**		**Group B 18-19 yr (n=140)**		**P value**
	n	%	n	%	n	%	
Anemia (Hb < 11 g/dl)	178	71.2	98	89.09	118	84.29	< 0.05
Gravida	61	24.4	9	8.182	53	37.86	< 0.05
G_1	12	4.8	2	1.818	10	7.143	< 0.05
G_2	10	4	1	0.909	7	5	< 0.05
G_3 and above	190	76	18	16.36	101	72.14	< 0.01
Adequate antenatal care taken	176	70.4	39	35.45	122	87.14	< 0.01
Literate	91	36.4	28	25.45	59	42.14	NS
Wt < 40 Kg	105	42	32	29.09	70	50	NS

Table 2: Maternal Outcome

Variables	**n=250**		**Group A ≤17 yr (n=110)**		**Group B 18-19 yr (n=140)**		**P value**
	n	%	n	%	n	%	
Anemia (Hb < 11 g/dl)	187	74.8	75	68.18	161	115	NS
Premature labor	96	38.4	61	55.45	52	37.14	< 0.01
Chorioamnionitis	30	12	11	10	21	15	NS
Pregnancy induced hypertension	44	17.6	20	18.18	20	14.29	< 0.01
Antepartum hemorrhage	9	3.6	4	3.636	8	5.714	< 0.05
Polyhydramnios	6	2.4	1	0.909	5	3.571	< 0.01
Eclampsia	21	8.4	10	9.091	9	6.429	NS
Oligohydramnios	5	2	1	0.909	1	0.714	< 0.01
Preeclamptic toxemia	17	6.8	9	8.182	8	5.714	NS
Gestational diabetes	1	0.4	0	0	1	0.714	< 0.01
Mode of delivery							
Normal vaginal delivery	130	52	55	50	81	57.86	NS
Cesarean Section	99	39.6	49	44.55	45	32.14	NS

Forceps	12	4.8	2	1.818	11	7.857	NS
Maternal mortality	1	0.4	1	0.909	0	0	NS
Still births	8	3.2	3	2.727	3	2.143	< 0.01

Table 3. Neonatal Morbidity And Mortality

Variables	**Cases (n=250)**		**Group A ≤17 yr (n=110)**		**Group B 18-19 yr (n=140)**		**P value**
	n	%	n	%	n	%	
Birth asphyxia	40	16	31	28.18	17	12.14	<0.01
Neonatal hyper bilirubinemia	22	8.8	16	14.55	10	7.143	< 0.01
Respiratory distress syndrome	8	3.2	7	6.364	1	0.714	< 0.01
Meconium aspiration syndrome	5	2	3	2.727	3	2.143	NS
Sepsis	9	3.6	4	3.636	3	2.143	NS
Congenital anomalies	1	0.4	1	0.909	1	0.714	NS
Neonatal mortality	17	6.8	11	10	5	3.571	<0.01

Discussion:

The risk of cesarean delivery in adolescent pregnancy reduced by 25% than adult pregnancy, which was consistent with the previous found, with aRR (95%CI) varying from 0.49 (0.42–0.59) to 0.79 (0.75–0.89) [19]. In fact, adolescent women were 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 [20]. But why was the rate of cesarean delivery in adolescent pregnancy was lower than that of the adult pregnancy?

First, the adolescent women aged 18–19 years accounted for more than half of all adolescent pregnant women, their physical development was basically mature [21]. Second, the pelvic cavity of adolescent women was smaller than that of adult women, and the fetal weight was relatively lower [22]. More preterm delivery and lower fetal weight was conducive for the adolescent women to make vaginal delivery [23].

The neonatal and perinatal mortality in SA was not increased among older adolescents, and the magnitude of the increased risk in preterm birth and LBW was smaller than in SSA and LA.In India and Pakistan marriage is not permitted before 18 years of age and it has been reported that families may misrepresent girls as older to avoid this limitation [12].

The adverse maternal outcomes of the adolescent pregnant had no difference from those of adult pregnant, such as in PE, placenta previa, placental abruption, postpartum hemorrhage, and some studies were consistent with our findings [24-25]. Some studies found that adolescent pregnancy increased the risk of postpartum hemorrhage [26]. Other studies found that adolescent pregnancy reduced the risk of postpartum hemorrhage [27]

There is a significant association between young age of mother and low birth weight even in developed countries. Babies born to teenagers are more likely than those born to women in their 20s to be born early and to weigh less than 2,500 g at birth. Further research suggests that these risks vary by age even among teenage mothers, younger mothers having the worst outcomes.[28] Some of the explanations proposed for these adverse birth outcomes are biological. Biological immaturity in teenage mothers itself is an inherent risk factor for poor outcome and

even adequate prenatal care does not completely eliminate the risk. Two general features of biologic immaturity could have a role in increasing the risk of adverse outcomes: a young gynecologicage (defined as conception within two years after menarche)[28]

Conclusion:

Teenage pregnancy was associated with a significantly higher risk of PIH, PET, eclampsia, premature onset of labor, fetal deaths and premature delivery. Increased neonatal morbidity and mortality were also seen in babies delivered to teenage mothers. Younger teenager group (≤17 years) was most vulnerable to adverse obstetric and neonatal outcomes.

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