

Maternal and Perinatal Outcome in Teenage Vs. Vicenarian Primigravidae - A Clinical Study

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ABSTRACT

Objectives: The aim of this study was to evaluate the maternal and foetal outcomes and complications in teenage primigravida as compared to those in primigravidae who were aged 20-29 years.

Methods: Eighty teenage and one hundred sixty adult primigravidae were taken up for the study. Study duration was 24 months, from November 2010 to October 2012, at Rural Medical Research Centre in southern India. During this period, all cases were included in the study, irrespective of their booking statuses. For every teenage primigravidae, two subsequent adult primigravidae were correspondingly studied. Patients with major skeletal deformities such as kyphoscoliosis, polio, pelvic fractures, diabetes mellitus, renal disorders, morbid obesity were excluded. All cases of molar pregnancies and primigravidas who were admitted for abortions were also excluded.

Results: 38.75% of teenage primigravidae were unbooked as compared to 6.9% of adults. 68.75% of teenage primigravidae were anaemic as compared to 33.75% of adults. Antenatal complications like anaemia, hypertensive disorders of pregnancy, oligohydroamnios, hypothyroid were significantly more in teenagers (68.8%) as compared to those which were seen in

adults(18.1%). 25% of teenagers had preterm births as compared to 5% adults who has preterm births. 43.75% of teenagers had Lower Segment Caesarean Section (LSCS) as compared to 20% adults who had LSCS. Indication was foetal distress in a majority of teenagers (68.5%). 29.2% of teenagers had low birth weight children as compared to 16.6% adults who had such children. 31.7% of teenage neonates required NICU admissions as compared to 12.27% neonates of adult mothers.

Interpretation and Conclusion: It can be interpreted that teenage primigravidae had a significant number of complications in pregnancy, leading cause being anaemia, more preterm incidences and higher rates of LSCS, followed by higher number of NICU admissions. Since teenage pregnancy is a multifaceted problem, it demands multidimensional solutions. Teenage pregnancies are more common in populations with low socio-economic statuses, 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 in our rural setup. As early marriages cannot be prevented in our culture, so, possibly creating awareness on late conceptions is of utmost importance.

Keywords: Teenage pregnancy, Primigravidae, Anaemia

INTRODUCTION

Teenage Pregnancy is a burning problem in both developed as well as developing countries. Teenage pregnancy depends on a number of societal and personal factors. The pregnancy rates vary between countries because of differences in levels of sexual activity, general sex education provided and access to affordable contraceptive options.

Various studies done around the world have suggested that teenage pregnancies are on the rise. In England and Wales, at present, the incidence is in between 2-44 per 1000 [1] from 0.8%. In USA Spitz et al., [2] reported that incidence was 25-75 per 1000 among those who were aged 15-17 years and that it was 92 to 165 per 1000 among those who were aged 18-19 years. Data of the National Family Health Survey (NFHS) [3] revealed that 16% of women who were aged 15-19 years had already started bearing children. Early marriage sometimes means adolescent pregnancies, particularly in rural regions where the rates were much higher, that is 21.21% [4] more than they were in urbanized areas.

In India, studies done in Bombay showed a rate of 33.17% [5], those done in Kolkata showed a rate of 15.7% [6], those done in Madurai showed a rate of 13.1%, [7] those done in Hyderabad showed a rate of 5.1%, [8] and those done in Coimbatore showed a rate of 12.69% [9]. Chahande et al., [10] reported a lesser

frequency of antenatal check-ups done on teenage patients.

Risk factors for teenage pregnancies

The higher rates of teenage pregnancies tend to be concentrated in rural areas and they are linked to poverty, age at marriage, poor transition from school to work at 16 years of age, lower socio-economic groups, sexual abuse, low educational levels, mental health problems, having had teenage parents, crime, out of wedlock pregnancies, social deprivation.

Complications

Various studies done in the world have found an increased risk of complications among adolescents. In India, Aznar et al., [11] observed an incidence of 10% of eclampsia in their adolescent group and increased caesarean section rates. An increased prevalence of anaemia among young pregnant women was found in four of seven studies done in developing countries, which were included in a review done by Scholl et al., [12]. Wiesenfeld et al., [13] conducted a recent study in USA, which revealed that 1 in 5 teenagers had an undiagnosed STI. Various other observations seen throughout the world were-higher number of vaginal operative deliveries (Konje et al.,) [14], higher incidences of inductions (Jolly et al.,) lower incidences of oxytocin use (Lubarsky et al.,) [15], shorter durations of active phase of labour in adolescents. In developed countries, the incidence of Low Birth Weight (LBW)

or Very Low Birth Weight (VLBW) in infants born to adolescent mothers was higher as compared to that seen in infants born to older mothers [16].

MATERIAL AND METHODS

A prospective case control study was done, where 80 teenage mothers were compared with 160 mothers who were in age group of 20-29 years. Study was conducted in Department of Obstetrics and Gynaecology of a Rural Medical Institute in southern India, from November 2010 to October 2012. Written informed consents were obtained from the mothers. The socio-economic statuses, education, religion, onset of menarche, marital status, and number of antenatal visits were carefully and meticulously recorded. Routine investigations were done. The statistical significance was considered at a p-value of <.05.

Inclusion criteria

All primigravidae who attended the hospital. For every teenage primigravida pregnancy, two subsequent adult primigravidae were studied.

Exclusion criteria

Mothers having major skeletal deformities such as kyphoscoliosis, polio, pelvic fractures, Diabetes mellitus, renal disorders, morbid obesity, all cases of molar pregnancies, known hypertensives and primigravidae who were admitted for abortions were excluded.

RESULTS

Unbooked cases were significantly more in teenage primigravida group, with a p-value of <0.001** as compared to adults [Table/ Fig-1].

Complications Mean Haemoglobin levels were significantly less associated with Teenage primigravida group, with a p-value of <0.001** [Table/ Fig-2].

Incidence of antenatal complications was significantly more associated with teenage primigravida group (68.8%) when as compared to that in adult primigravida group (18.1%), with a p-value of <0.001**. Anaemia was the most common complication in teenagers (68.75%) in teenage as compared to that in adults (33.75%), adults followed by PIH [Table/ Fig-3].

Incidence of LSCS was significantly more with among teenage primigravida (43.75%) as compared to that among adults (20%), with a p-value of <0.001** [Table/ Fig-4].

Incidence of failed inductions (20%) and foetal distress (68.5) were associated more significantly with teenage primigravida, with a p-value of =0.003. Incidence of Low birth weight was significantly

Antenatal care	Teenage primigravida (n=80)		Adult primigravida (n=160)	
	No	%	No	%
Booked	49	61.25	149	93.1
Unbooked	31	38.75	11	6.9
Total	80	100.0	160	100.0

[Table/ Fig-1]: Booking Status

Anemia (Hb)	Teenage primigravida (n=80)		Adult primigravida (n=160)	
	No	%	No	%
> 11	25	31.25	106	66.25
10.0-10.9	21	26.25	41	25.63
7.0-9.9	30	37.5	11	6.87
4.1-6.9	4	5	2	1.25
< 4.0	0	0	0	0
Total	80	100.0	160	100.0

[Table/ Fig-2]: Haemoglobin percentage

more in Teenage group (29.2%) as compared to that in Adults (16.6%), with a p-value of =0.019* [Table/ Fig-5].

29.2% of neonates who belonged to teenage mothers were having had birth asphyxia and hence, they required neonatal resuscitations as compared to 7.3% neonates in adult group. Whereas 10% of neonates who belonged to teenage mothers had neonatal hyper-bilirubinaemia as compared to 4.9% in among adult mothers [Table/ Fig-6].

Postnatal: 72.5% of teenage mothers came for follow-up as compared to 82.5% of adult mothers. Incidence of complications like wound gaping was 12.8% in teenagers as compared to 3.7% in adults and, sepsis was 5% in teenagers as compared to that in adults.

Antenatal complications	Teenage primigravida (n=80)		Adult primigravida (n=160)	
	Number	%	Number	%
Absent	25	31.3	131	81.9
Present	55	68.8	29	18.1
Hypertensive disorder of pregnancy	15	18.5	11	6.8
Anemia	55	68.75	54	33.75
ECC	1	1.2	1	0.7
Oligohydramnios	2	2.5	2	1.2
Hypothyroid & IE	0	0.0	2	1.2
IUGR	1	1.2	3	1.9
Preterm	20	25.0	8	5.0

[Table/ Fig-3]: Antenatal complications

Mode of delivery	Teenage primigravida (n=80)		Adult primigravida (n=160)	
	No	%	No	%
Normal Vaginal	37	46.2	118	73.75
Instrumental (OF+V)	8	10	10	6.25
LSCS	35	43.75	32	20.00
Total	80	100.0	160	100.0

[Table/ Fig-4]: Mode of delivery

Baby birth weight	Teenage (n=82)		Adults (n=163)	
	No	%	No	%
< 499 gms	3	3.65	1	0.6
1500-1999 gms	3	3.65	6	3.72
2000-2499 gms	18	21.95	20	12.27
2500-2999 gms	33	40.24	54	33.13
3000-3499 gms	23	28	63	38.6
3500-3999 gms	2	2.44	18	11.04
> 4000 gms	0	0.0	1	0.6
Total	80	100.0	160	100.0

[Table/ Fig-5]: Baby birth weight

Neonatal morbidity / mortality	Teenage (n=82)		Adults (n=163)	
	Number	%	Number	%
Birth asphyxia	24	29.2	12	7.3
Neonatal resuscitation	24	29.2	12	7.3
NICU care	26	31.7	20	12.27
Neonatal hyper-bilirubinaemia	10	12.19	8	4.9
RDS	6	7.3	4	2.45
Meconium stained amniotic fluid	12	14.6	11	6.7
Meconium aspiration syndrome	8	9.7	6	3.68
Sepsis	2	2.4	1	0.61
Congenital anomaly	0	0	0	0

[Table/ Fig-6]: Neonatal morbidity/mortality

DISCUSSION

Teenage pregnancy is a problem in developing countries like India. Important observations were found in this study, which suggested that most of teenage mothers (53.5%) hadn't had primary education itself as compared to 8.1% in among adults and that a majority of the population i.e 43.75% of teenagers belonged to low socio-economic class. 61.25% of teenage mothers were booked.

Complications such as anaemia, was an were important factors in the present study. Studies done by Verma V [17] and Shrivage JC [18] also showed high rates of teenage mothers with anaemia as compared to those of adult mothers, as was depicted in our study also, probably because of poor nutrition in this group of women. To counter this problem, more focused national programmes like FOGSI 12 by 12, where aim is to achieve to achieve 12 gms of Hb% by the age of 12, are necessary [Table/Fig-7].

Other complications such as pre-eclampsia which are seen in teenage mothers were comparable to those seen in vital studies [Table/Fig-8].

In the present study, preterm deliveries were 5 times more common among teenage primigravidaes (25%) as compared to those seen among adult primigravidaes (5%). Studies done by Bhaduria [25], Bhattacharya [26] and Shrivage JC [18] studies showed higher incidences of preterm deliveries in teenage primigravidaes.

	Teenage	Adult
Present Study (<11 gm)	68.75%	33.75%
Verma Study [17]	35%	25%
Nayak et al., [19]	12.98%	-
Chhabra et al., [20]	70%	-
Shrivage JC Study [18]	84.2%	34.2%
Pal Amitha et al., [21]	27.5%	11.2%
Ashok Kumar, 2007<11g [22]	62.9%	-

[Table/Fig-7]: Anemia comparison

	Teenage	Adult
Present Study	18.75%	6.8%
Verma V Study [17]	18.8%	11.5%
Shrivage JC Study [18]	37%	25%
Russel Study [23]	20.2%	-
Pawar S Study [24]	20%	-
Bhaduria Study [25]	23.7%	-
Pal Amitha et al., , [21]	15%	8.7%

[Table/Fig-8]: Preeclampsia comparison

In the present study, there was a lower number of normal vaginal deliveries (46.2%) was seen in teenage primigravidaes when as compared to that which was seen in adult primigravidaes (73.75%). This was consistent with the findings of other studies such as Verma's study [17] and Shrivage's study [18]. Incidence of LSCS in teenage primigravidaes were was higher (43.75%) i.e. almost double of the incidence that of that was seen in adults, which was comparable to those which were seen in Shrivage's study [18] and Chhabra's study [20]. Most common indication for LSCS was foetal distress, was followed by CPD in both the groups.

Operative interventions were 10% in teenage primigravidaes and they were 6.25% in adult primigravidaes, which were similar to those seen in studies done by Pal Amitha et al., [21] and Shrivage et al., [18]. Incidence of complications like wound gaping (including CS and episiotomies) was 12.5% in teenagers as compared to 3.7% in adults, sepsis was 5% in teenagers as compared to that

in adults (3.7%). Around 5% of teenage group required blood transfusions as compared to 1.25% of among adults.

This study showed a higher incidence of low birth weight babies who were born to teenage primigravidaes which was consistent with those which were seen in Shrivage JC's and Kushwaha's studies. The main cause of premature and Low Birth Weight (LBW) babies may be poor nutritional status, pre-eclampsia and Anaemia may be additional reason for premature and low birth weight babies. Among neonatal morbidities, incidences of birth asphyxia, RDS and neonatal hyper-bilirubinaemia were significantly more in the teenager group.

Only 43.75% of teenage mothers had knowledge about on breast feeding as compared to 63.12% in mothers among adults., All of them were encouraged and demonstrated to feed their babies., 95% of teenage them were successful in establishing breast feeding.

CONCLUSION

This study clearly depicted the importance of age during pregnancy. Teenage group was not scientifically and medically fit for child bearing, especially in rural population, where significant number of complications were seen during pregnancy, such as anaemia, pre-eclampsia and preterm labour, as compared to those seen in adult primigravidaes, in their 20s. To prevent Teenage Pregnancy and its complications, following five observations have to be advocated

1. Awareness on the fact that one should not marry before the age of 20 years
2. Avoidance of pregnancies before the age of 20 years, if married, mainly due to socio-economic problems, by using contraception (OC Pills and Condoms)
3. Being alert, to find out early complications and to promptly take treatment
4. Making audits if the women died during their pregnancies
5. Ensuring that the womens' well-being was taken care of after their deliveries, by providing proper nutrition, education, instating of family planning programmes to prevent further pregnancies (by Post partum IUCD).

REFERENCES

- [1] Teenage Pregnancy in Britain Birth Control Trust. London Bury. *British Journal of Obstet Gynaecol.* 1985; 92: 1081-3.
- [2] Spitz AM, Venter SJ. Surveillance for pregnancy and birth rates among teenagers by state – United States. *Adolescent Health.* 1993; 42(6):1-27.
- [3] National Center for Health Statistics. Technical appendix. Vital statistics of the United States: Mortality, 2000. Available on NCHS Website at [www.cdc.gov/nchs/data/nvsr/nvsr48/nvs48_11_2000_48\(3\):100pp](http://www.cdc.gov/nchs/data/nvsr/nvsr48/nvs48_11_2000_48(3):100pp) (PHS) [Accessed Oct 2011]: 1120-00
- [4] Goswami BK, Goswami BJ. Teenage Pregnancy. *Obstet Gynaec India.* 1989;39: 475-8.
- [5] Pratinidhi A, Shrotri A, Shah U. Risk of teen-age pregnancy in a rural community of India. *Indian J Matern Child Health.* 1990 Oct-Dec; 1(4): 134-8.
- [6] Banerjee B, Pandey GK, Dutt D, Sengupta B, Mondal M. Teenage Pregnancy: A socially inflicted health hazard. *Indian J Community Med.* 2009; 34 : 227-31.
- [7] Philips PS, Siva Kama Sundar. Teenage pregnancy. *J Obstet Gynaec India.* 1978; 28: 576-81.
- [8] Pachauri S, Jamshedji A. Risk of teenage pregnancy. *J Obstet and Gynecol. India.* 1933; 33: 477-81.
- [9] Seeniammal. Problem of teenage pregnancy. Handbook. 1983; 125-36.
- [10] Chahande MS, Jadho AR, Wadhva SK, Udhade S. Study of some epidemiological factors in teenage pregnancy hospital based case comparison study. *Indian J Community Med.* 2002; 27: 106-9.
- [11] Aznar R, Bennet AE. Pregnancy in the adolescent girl. *Am Obstet Gynaec.* 1961; 81: 934.
- [12] Scholl TO, Hediger ML, Belsky DH. Prenatal care and maternal health during adolescent pregnancy: a review meta-analysis. *J Adolescent Health.* 1994; 15:444-56.
- [13] Wiesenfeld HC, Lowry DL, Heine RP, Krohn MA, Bittner H, Kellinger K, et al. Self-collection of vaginal swabs for the detection of Chlamydia, gonorrhoea, and trichomoniasis: opportunity to encourage sexually transmitted disease testing among adolescents. *Sex Transm Dis.* 2001; 28:321-5.
- [14] Konje JC, Palmer A, Watson A. Early teenage pregnancies in Hull. *Br J Obstet Gynaecol.* 1992; 99: 969-73.
- [15] Lubarsky SL, Schiff E, Friedman SA, Mercer BM, Sibai BM. Obstetric characteristics among nulliparas under age 15. *Obstet Gynaecol.* 1994; 84: 365-8.

- [16] Miller PM, Plant M. Drinking, smoking, and illicit drug use among 15 and 16 year olds in the United Kingdom. *BMJ*. 1996; 313: 394-7.
- [17] Verma V, Das KB. Teenage primigravida: a comparative study. *Indian J Public Health*. 1997; 41: 52-5.
- [18] Shrivage JC. Maternal and perinatal outcome in teenage pregnancy as compared to primigravida aged 20-29 years: A cross sectional study. *J of Obs and Gynae*. 2000 ; 7:32-43.
- [19] Nayak AH, Puraik KG, Dala AR. Obstetrics outcome in Teenage Pregnancy. *J Obstet Gynec India*. 1992;42: 442-6.
- [20] Chhabra S. Perinatal outcome in Teenage Mothers. *J Obstet Gynec India*. 1991; 41: 30-2.
- [21] Pal A, Gupta KB, Randhawa I. Adolescent pregnancy: A high risk group. *J Indian Med Assoc*. 1997; 95: 127-8.
- [22] Ashok Kumar, Tej Singh, Sriparna Basu, Sulekha Pandey. Outcome of Teenage Pregnancy. *Indian Journal of Pediatrics*. 2007; 74(10): 927-31.
- [23] Russel JK. Early Teenage pregnancy. *Am J Obstet and Gynecol*. 1982; 3:1
- [24] Pawar S. Teenage pregnancy. *Indian Journal of Obs and Gynae*. 1987; 89: 119-21.
- [25] Bhaduria S, Singh S, Sankar B. Teenage pregnancy: A Retrospective study. *J Obstet Gynae India*. 1991; 41: 454-6.
- [26] Bhattacharya A, Chowdhury N. Teenage primigravida. *Journal of Obstet Gynac India*. 1986; 36: 660.

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Date of Submission: **Aug 03, 2013**Date of Peer Review: **Sep 19, 2013**Date of Acceptance: **Nov 11, 2013**Date of Publishing: **Dec 15, 2013****FINANCIAL OR OTHER COMPETING INTERESTS:** None.