Foetomaternal Outcome In Mothers Aged 30 Years And Above Compared To Mothers Aged 19 Years And Below

Ujjwala Anand[1]*, Mahendra kumar bairwa[2], Manish Kr Gupta[3]

[1]*,[2],[3]Assistant Professor, Dept of OBG, ESIC Medical college & Hospital Faridabad Haryana India

*Corresponding Author: Dr. Ujjwala Anand

*house no 252/3B Om Gayatri nagar post office Teliarganj   India, M: 7543040539,
Email: Ujjwala.anand@gmail.com

Abstract

Background: High risk pregnancies are a small segment of the obstetrical population that produces the majority of the maternal and neonatal mortality and morbidity.

Objectives: To compare these two high risk groups, to see whether that affects the foeto-maternal outcome.

Method: This is a prospective, comparative study conducted at Department Of Obstetrics & Gyanecology, Darbhanga Medical College & Hospital, Laheriasarai, Bihar, from March 2015 to August 2016.

Results: In the elderly group, the most statistically significant observation was anaemia. Since this age group was mostly multiparous (78%), repeated childbirths at close intervals seem a plausible cause. So, even in this group, contraception for spacing is very essential to help the mother replenish her iron stores after childbirth and lactation. Since the obstetric performance and neonatal outcome have no significant difference between the two groups of mothers ≤ 19 yrs and ≥ 30 yrs.

Conclusion: It is logical to conclude that given appropriate psychological support and antenatal care, the pregnancy outcome in teenage mothers is comparable to that of the older mothers. So, teenage pregnancy is more of a social issue, albeit, a very important one.

Keywords: Foetomaternal outcome, Mothers aged 30 years and above, Mothers aged 19 years and below

Introduction:

One of the important factors making a pregnancy "high risk" is the age of the pregnant woman. Maternal age can have an impact on pregnancy at both ends of the reproductive spectrum. The reproductive age maybe from menarche (or even before the first menstruation) to menopause, but pregnancy is usually seen to occur from 15-45 years in hospital settings. Pregnancies occurring outside these age limits usually end in induced or spontaneous miscarriages.

Teenage pregnancy is coming up as one of the most important social and public health problems all over the world, with a varying prevalence rate. Adolescent marriage is still a common practice in many parts of India, though it is a cognizable offence according to the laws of the land. A high fertility rate, social customs, poverty and ignorance of contraceptive methods, make early pregnancy a common feature in this part of the world. [1]

Teenagers are more likely to be anaemic, and pregnancy at this early age increases the risk of intrauterine growth retardation, preterm delivery, higher infant mortality, and increased incidence of

STDs Another study showed that preterm deliveries, small for date infants, anaemia, chorioamnionitis, are more in teenage mothers, whereas obesity, gestational diabetes, and Caesarian section rates are more in mothers aged 30 years and more.

According to FIGO classification, elderly primigravidae is considered from 35 years of maternal age. This age is arbitrary and the term "elderly gravidae" is now passé. In this study, the cut-off age has been chosen to be 30 yrs, as for all practical purposes, age related pregnancy complications begin from this age.

In the last three decades, there has been a trend towards deferred child bearing, especially among healthy, well educated women with career opportunities. Both men and women of today delay child bearing in lieu of career goals, but are yet unwilling to abandon parenthood. So there has been a doubling in the percentage of pregnancies above 30 yrs of age: 5% in 1982 to > 10% in 2005. Pregnancy in the elderly is associated with increased risk of congenital anomalies, gestational diabetes, hypertensive disorders, prolonged labour, CPD and instrumental deliveries. [2]

Though much work has been done with regard to risks of teenage pregnancy and pregnancy in the elderly, in various parts of the world, there is paucity of studies in India, Especially Bihar. Working in a DMCH, Bihar, we come across a large cross-section of people belonging to middle class and lower middle class- including those from the neighbouring districts and slums. With an annual delivery of around 1000 -1500, this population represents a true subset of the majority of women of Darbhanga. Very few studies have been done in this region.

Secondly, no studies have been done comparing the incidence of various maternal and neonatal complications at both ends of the age spectrum. The purpose of this study is to compare these two high risk groups, to see whether that affects the foeto-maternal outcome.

Materials and Methods:

This prospective, comparative case study has been conducted in the Department of Obstetrics and Gynaecology of Darbhanga Medical College & Hospital, Laheriasarai, Bihar. The period of study was from 1st March 2015 to 31st August 2016 (1½ years).

This hospital conducts about 1000 – 1500 deliveries on an average per annum. The catchment population includes lower middle class families living in and around the hospital, neighbouring districts and few slum dwellers.

Inclusion criteria
Apparently healthy mothers, aged ≤ 19 years and ≥ 30 years, irrespective of parity, attending the Department of Obstetrics & Gynaecology, Darbhanga Medical College & Hospital, Laheriasarai, Bihar.

Exclusion criteria
Cases with pre-existing medical disorders, which could adversely affect the outcome of pregnancy, i.e. heart, kidney disease, bronchial asthma, pre- existing diabetes mellitus, chronic hypertension, hypothyroidism etc., or a past H/O poor obstetric outcome were excluded.

Sample size
Source population
Total deliveries from 1/03/15 to 31/08/16   1104
No of mothers ≤ 19 years   210 (19.0%)
No of mothers ≥ 30 years   140(12.7%)

Study population
No of mothers aged ≤ 19 years   63
No of mothers aged ≥ 30 years   50
Lost to follow up (both groups together)   19

Sample procedure

- Pregnant women aged ≤ 19 years and ≥ 30 years, irrespective of parity, attending the Department of Obstetrics & Gynaecology, DMCH, Laheriasarai, Bihar, were included in this study.
- A prepared and printed proforma (given later) was filled up separately for each case, in each visit.
- The proforma had numbers for each parameter to facilitate statistical evaluation later.
- Each proforma was numbered serially, and the same number was written on the top right hand corner of the antenatal cards (which is retained by the patient).
- The medical history included demographic, socio-economic, marital and reproductive history, investigations and treatment history, as well as a review of available medical records. Examination of the mother was noted antenatally.
- The proforma was completed after delivery of the patient and maintained serially.
- Everyday the indoor wards were checked to detect the patients admitted for delivery in other units on other days of the week, by looking at their antenatal cards attached to their BHT.
- Mothers were assessed for parity, education and occupation of both subject and husband, contraceptive use, antenatal care, Haemoglobin level, Blood pressure, Blood sugar (Fasting), modes of delivery and gestational age at delivery. The neonates were assessed for birth weight, Apgar score, congenital anomalies, prematurity, Jaundice, or Neonatal death.
- Mothers and babies were examined twice daily till discharge, for development of any complications.
- Mothers aged ≤ 19 years were considered Group -1 and mothers aged ≥ 30 years were taken as Group-2.
- For each parameter, the raw data was entered into a MS Excel spreadsheet and statistically evaluated.

Results:

The total number of antenatal patients who delivered in Department of Obstetrics & Gynaecology, DMCH, Laheriasarai, from 1st March 2015 to 31st August 2016 was 1104. Among them, 210 were <19 yrs age (group 1) and 140 were >30 yrs age (group 2). This means that the incidence of teenage delivery in this hospital in 1 year was 19.0%,and 12.7% of mother were >30 yrs old. Out of them, 63 mothers ≤19 yrs old were taken for study as Group 1 (30.70%) & 50 mothers were ≥30 yrs (Group 2), i.e. 24.1%.This sample size was taken keeping in view the limitation of one and half years study period.

All the women in this study were married.

47.54% of teenage mother and 46.94% of group 2 (both nearly 50%) were found to be S.E class 2. 29.51% of group 1 (<19 yrs) & 22.45% of group 2 (>30 yrs) were in S.E 3. They were thus matched for the S.E conditions, as p value was not significant.

Regarding religion, 71.43% of < 19 yrs mothers were Hindu and 25.40% were Muslim. Similarly, 70% of >30 yrs mothers were Hindu & 28% were Muslims. So even by religion, the 2 groups are completely matched. Only 3.17% of group 1 & 2.00% of group 2 were Christians or Buddhists.

85.25% of husbands of Grp-1 and 89.8% of those of Grp-2 were literate, which is not statistically significant.

In case of subjects, literacy was more among mothers below 19 years (85.25%) compared to mothers above 30 years (73.45 %).

Husbands of mothers in both groups were found to be employed as non-manual skilled labours, like drivers, tailors, etc. Both groups were thus statistically matched.

Significantly more mothers of group-2 were working (32.65%), than those of group-2 (6.56 %).This was statistically significant (p = < 0.001).

Contraceptive in any form was used by 30.0% of mothers aged ≥ 30 years, whereas, only 9.52% of mothers ≤ 19 years used them. This was also statistically significant (p = 0.007). In both groups, OCP's were the most frequently used form of contraceptive.

Taking the individual complications of importance, Preeclampsia was present in 19.05% of teenage mothers and 22% of mothers aged > /=30 yrs. This difference was not statistically significant (p= 0.815).Two mothers in grp-1 had eclampsia, though 12 mothers in grp-1 and 11 mothers in grp-2 had pre=eclampsia. One had malignant hypertension with bilateral papilloedema.

The incidence of anaemia was quite high.17.46% of teenage mothers were anaemic, and 36% of mothers in grp-2,(>30 yrs) were anaemic. This was statistically significant (p= 0.031)

Only two mothers of group 1 and three mothers of group 2 were diabetic. Hypothyroidism, H.mole& missed abortions were seen in one mother each.

Spontaneous vaginal delivery was seen in 70.59% mothers of Grp-1 and 65.12% of grp-2, 9.80% of Grp-1 and 9.30% of Grp-2 had to be induced and 19.61% and 25.58% respectively had an elective Caeserian section. None of these values were statistically significant.

Table 1: Onset of labour in both groups

	<19 yrs (n=51)		>30 yrs (n=43)	
	No.	%	No.	%
Spontaneous	36	70.59%	28	65.12%
Induced	5	9.80%	4	9.30%
Elective CS	10	19.61%	11	25.58%

Chi square test 2 tailed p value 0.650.

Table 2: Mode of delivery in both groups

	<19 yrs (n=57)		>30 yrs (n=45)	
	No.	%	No.	%
1(Vaginal delivery with epi)	19	33.33%	6	13.33%
2(Vaginal delivery without epi)	8	14.04%	17	37.78%
3(Instrumental delivery)	1	1.75%	0	0.00%
4(Elective C/S)	9	15.79%	9	20.00%
5(Emergency C/S)	20	35.09%	13	28.89%

Chi square test 2 tailed p value 0.024.

Comparing vaginal mode & LUCS mode, ignoring mode 3 (forceps), irrespective of parity, almost 50% in both groups had a vaginal delivery as is reflected below.

Table 3: Incidence of vaginal delivery and C/section

	<19 yrs (n=56)		>30 yrs (n=45)	
	No.	%	No.	%
Delivery mode 1 & 2	27	48.21%	23	51.11%
Delivery mode 4 & 5	29	51.79%	22	48.89%

Fisher exact test 2 tailed p value 0.842.

Even when analysed according to parity,47. 91% primigravidmothers and 44.44% multigravid of grp-1mothers had a vaginal delivery with or without episiotomy; the difference was not statistically significant. In grp-2, 18.18% of primi and 61.76% of multi had a vaginal delivery, the rest had Caesarean section.

1 = Vaginal delivery with episiotomy
2 = Vaginal delivery without episiotomy

3 = Instrumental
4 = Elective C/S
5 = Emergency C/S

Table 4:Comparing delivery modes among primigravida in two groups (excluding instrumental delivery)

	<19 yrs (PRIMI)		>30 yrs (PRIMI)	
	No.	%	No.	%
Delivery mode 1 & 2(Vaginal)	23	48.94%	2	18.18%
Delivery mode 4 & 5(LUCS)	24	51.06%	9	81.82%
Total	47		11	

Fisher exact test 2 tailed p value 0.093.

Table 5: Comparing delivery modes among multigravida in two groups (excluding instrumental delivery)

	<19 yrs (MULTI)		>30 yrs (MULTI)	
	No.	%	No.	%
Delivery mode 1 & 2(Vaginal)	4	44.44%	21	61.76%
Delivery mode 4 & 5(LUCS)	5	55.56%	13	38.24%
Total	9		34	

Fisher exact test 2 tailed p value 0.455

Table 6: Foetal outcome in two study groups

	<19 yrs(n=57)		>30 yrs(n=45)	
	No.	%	No.	%
Live birth-(1)	52	91.23%	42	93.33%
Still birth-(2)	4	7.02%	2	4.44%
Neonatal death-(3)	1	1.75%	1	2.22%

Chi square test 2 tailed p value 0.664.

Two (2) mothers in grp-2 and one (1) mother in gp-1 had twins. In grp-2, one mother delivered stillborn twins (clubbed as 1 for statistical reasons) while the mother expired (unbooked), due to severe anaemia and PPH.The other two sets of twins survived along with their mothers.
One baby in grp-1 was a macerated preterm , diagnosed with congenital abnormality(double bubble and scalp oedema by USG at 32 weeks.)

Neonatal complications
9.43 % mothers of grp-1 and 15.79% of grp-2 mothers delivered preterm, the difference was not statistically significant (p= 0.516).
Similarly, the difference in LBW babies, in the 2 groups were not significant statistically (23.21% in grp-1 and 26.67% in grp-2).
There was no statistical difference in the mean birth weight of babies in both the study groups.

Puerperal complications
Maternal death-2; 1 (one) in grp-1 due to eclampsia and pulmonary embolism,and 1 (one) in grp-2 due to severe PPH in a case of twin pregnancy with severe anaemia. Both were unbooked.

Delayed wound healing was a complication in one mother of grp-2, who also had anaemia.

Discussion:

In this study, the incidence of teenage pregnancies is 19 %, which conforms with the other studies in India, which shows a wide range in the incidence, from 3 % to 52 %. The National Family Health Survey -3 (NFHS-3) studies done in 2005-06, gives a rate of 24.17 % in Darbhanga. Though this study is also based in Darbhanga, but it includes a small segment of teenage mothers who attended this Hospital, whereas the NFHS study included all teenagers who also had home births or attended Private Hospitals.

Incidence of pregnancies in mothers aged ≥ 30 years in this study is 12.7 %. Very few studies are there to note the incidence of pregnancies in mothers of this age group. Most studies are on primigravidae > 35 yrs, and recent studies are focusing on mothers even more than 40 yrs. But this study gives a slightly more incidence as compared to a Turkish study by Al-Turki Haifa et al[2] which is 8.14%. A study in Thailand by Watcharasenana N *et al* where they got a rate of 9 % and even an Indian study by Trivedi SS[3] got a low incidence of 6.35 %, almost half as in this study. This study has included primigravidae as well as multigravidae ≥ 30 yrs, whereas most studies include elderly primigravidae only, which might cause this discrepancy in rate.

The rate of **contraceptive use** in this study is very poor. Only 9.5 % of the teenage mothers and only 30 % of the mothers in group 2 have used contraception of some form before the index pregnancy. These results are very dismal and markedly lower than the NFHS-3 study of India, Bihar or even Darbhanga (70 – 76 %). The NFHS-3 study encompasses the whole reproductive age group, and hence includes any form of contraception used anytime in their reproductive life, and therefore this discrepancy.

Even studies outside India show a much higher contraceptive use than in India – 44.5 5% in 15 – 17 years old and 37.1% of 18 – 19 year old girls in Brazil.and 49 % of 15 – 19 years old in Canada use OCP. We need to improve awareness in our country to a great extent.

MATERNAL COMPLICATIONS

a) Anaemia

Anaemia is the most important indirect cause of maternal mortality in our country. This study also found 17.46 % of teenage mothers and 36 % of pregnant women ≥ 30 years to be anaemic. This was statistically significant (p=0.031). Most studies show an increased incidence of anaemia in teenage mothers – but those studies are in comparison to mothers between 20 – 30 years. The study by Banerjee B. et al, got an incidence of 62.96 % anaemia in teenage mothers , when Haemoglobin < 10 gm/dl was considered as anaemia. This study considers <10 gm/dl of Hb as anaemia, but still the incidence is quite low. Other Indian studies have reported anaemia in pregnant teenagers to be 56 % by Thakkekkara T.*et al* [4] , 62.9 % by Kumar A. *et al*[5] 72.6% by Chahande MS *et al*[6]. A study in Turkey by Keskinoghu P. *et al*[7] found anaemia in 38.5 % of teenage mothers, whereas Thailand study has an incidence of only 17.1 % anaemic mothers in the 13 – 19 yrs age group, which conforms to this study.

b) Preeclampsia

The incidence of preeclampsia in this study is 19.05 % in teenage mothers and 22.0 % in mothers ≥ 30 years, - the difference in these two groups is not statistically significant (p=0.815). This result was surprising, as most studies show an increased incidence of pre-eclampsia in teenage and elderly mothers. But again, these two groups have never been matched for the incidence of hypertension. Since both these age groups have increased incidence of pre-eclampsia compared to the 20 – 30 yrs age group , no one age group in the study is more prone to hypertension than the other. Other studies have incidence of pre-eclampsia in teenage mothers varying from 29 %, 8.5 %, 18.4 % in India to even as low as 0.6 % in Turkey . On the other hand, Conde – Agudelo A, Belizan Jose M, Lammers C[8], in a cross sectional study in Latin America. found no significant differences in the effect of adolescent pregnancy on pre-eclampsia, eclampsia.

Surprisingly, this study showed that there was no statistical difference in the mode of delivery between adolescent mothers and mothers aged $\geq$ 30 years. Irrespective of parity, 48.21 % of adolescents and 51.11 % of elderly mothers had Caesarian births. (p value0.842).

The Caessarean rate in this hospital is very high, much higher than the recommended 15 % by WHO. This maybe because it is a tier II referral hospital. Most hospital based studies in India show a high C/S rate – 35 % by Kumar A. *et al*[5] , 27.7 % by Ai Turki*et al*[2] , 28.1% in Taiwan in 2001also show a high incidence , but this study has an exceptionally high C/S rate which needs looking into.

Foetal outcome

The stillbirth and neonatal death rate in this study is more than in other studies. Kumar A. *et al* had a low figure of 1.9 % stillbirths and 3.8 % neonatal mortality rate in adolescent pregnancies. Even elderly mothers in the study by Hoffman M. Camille *et al* [9] reported an incidence of 1.7 % fetal death in mothers < 35 years and 2.4 % among 30 – 39 years old mothers. The high mortality figures in this study are most probably due to a small sample size, compared to the above mentioned studies.

The mean birth weight of babies born to these mothers in this study was almost equal in both the groups. Though the rates are high, they conform to the findings of other studies, and the difference in the two groups is not statistically significant. (p =0.817).

Other studies in India and outside have varying results. India has 26% incidence of **LBW babies** compared to 30 % in Bangladesh, 21% in Pakistan and 17% in Sri Lanka, in 1995-2000. Banerjee B. *et al*[10] found a mean birth weight of only 2360 gms. LBW in teenage mothers was as high as 65.52 % in her study; whereas Horon*et al* found no significant difference in birth weights between the two groups – which agrees with the result in this study.

Conclusion:

Significant difference (p=0.031) was noted in incidence of anaemia with the older age group being more anaemic. No difference was noted in the incidence of PIH (p=0.815) or diabetes. One mother of group 1 died of eclampsia and one mother of group 2 died of severe postpartum haemorrhage.

No significant difference was noted regarding mean gestational age at delivery, stillbirth or early neonatal death. The mean birth weights were also comparable; 2620 gm in grp-1 & 2662 gm in grp-2. Incidence of preterm births or LBW babies was also not statistically significant in these two groups.

References

1. AnandalakshmyPN , Buckshee K –Teenage pregnancy and its effects on Maternal and Child Health- a hospital experience , *Indian J Med Sci 1993; 47 :*8 -11.

2. Al – Turki Haifa A , Abu- Heija , Adel T ,Mohammad H.Al-sibai. The outcome of pregnancy in elderly primigravidas .*Saudi Med Journal 2003;* Vol 24 (11): 1230 -33.

3. Trivedi SS.Teenage pregnancies and their obstetric outcomes ;*Trop Doct* 01 Apr 2007 ,37 (2) :85 -88.

4. Thakkekkara T., VeenuJ , Teenage Pregnancy : A Comparative study of the outcome and complications .*J of Indian Medical Association 2009*: 107(1) 34 -35.

5. Kumar A, Singh T, Basu S *et al.*Outcome of Teenage Pregnancy *Indian J .Paediatrics 2007;*74(10): 927 -931.

6. Chahande MS , Jadhao AR, Wadhwa SK ,Vghade S. Study of some epidemiological factor in teenage pregnancy – A Hospital based case comparison study .*Indian J Community Med 2002;* 27 : 3.

7. KeskinogluP,Bilgic N, Picakciefe M Giray H. *et al*, Perinatal Outcomes and risk factors of Turkish adolescent mothers , *J of Paed and Adolescent Gynaecol 20 (1) Feb 2007.*

8. Conde – AgudeloA. ,Belizan Jose M ,LammersC.Maternal – Perinatal morbidity and mortality associated with Adolescent Pregnancy in Latin America: Cross sectional study.*American J of ObstetGynecol 192 (2) Feb 2005* Hoffman ,M Camille *et al AJOG ,* 196 (5).

9. Banerjee B , Pandey GK , Dutt D *et al* Teenage Pregnancy : A socially inflicted Health Hazard,.*Indian J of Community Medicine 2009:*34 (3) : 226 – 228.