

Research Article

Obstetric and perinatal outcome of elderly mothers aged 35 years and above: a comparative study

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ABSTRACT

Background: Across the world, there is a rising trend among women towards delaying pregnancy and child birth. The wide educational and career choices available currently encourage women to pursue their professional goals relentlessly and many opt to delay pregnancy. Easy access to the wide range of modern contraceptive methods has enabled them to achieve better control of fertility.

Methods: The study conducted in Chennai Medical College and Research Centre, Trichy over a period of 18 months compared pregnancy related complications, maternal and perinatal outcomes in elderly women, with non-elderly women as controls. Forty two elderly gravidae were compared with 50 non-elderly gravidae.

Results: The mean age of women in study group was 37.1 and 27.6 in the control group. 14.3% in the study group of patients had assisted conception whereas all of patients in the control group conceived spontaneously. There were 4 (9.5%) miscarriages in the study group and none in the control group. The incidence of pre-gestational diabetes, gestational diabetes and preeclampsia was found to be higher in the study group and this was statistically significant (P Value <0.0001).

Conclusion: This study analyzing the effect of advanced maternal age on pregnancy has shown favourable maternal and perinatal outcomes. The study showed a significant difference in the incidence of pre-gestational diabetes, gestational diabetes, preeclampsia, miscarriage, antepartum hemorrhage, induction of labour, instrumental deliveries and caesarean section rates in elderly gravidae. But the risk of aneuploidy, malpresentations, placenta previa and prolonged labour were not found to be high. The incidence of low APGAR score was high in the study group, but it was attributable to specific causes like placental abruption. There were no perinatal deaths in both groups.

Keywords: Elderly gravidae, Caesarean section, Pre-gestational diabetes, Perinatal outcomes

INTRODUCTION

Across the world, there is a rising trend among women towards delaying pregnancy and child birth. A significant proportion of women are electing to postpone their pregnancy well late into the fourth and fifth decades.¹ This trend is observed universally, irrespective of the race and economic status.

This growing trend reflects on the advanced outlook of women and the society alike. The wide educational and

career choices available currently encourage women to pursue their professional goals relentlessly.² Propelled by the quest to achieve higher educational and economic status large number of women opts to delay pregnancy. Easy access to the wide range of modern contraceptive methods has enabled them to achieve better control of fertility.²

Increasing rates of divorce followed by remarriage also contributes to this trend substantially.³ Another important contributor is the use of assisted reproductive technology.

Though decreasing oocyte quality and quantity, endometrial polyps, uterine fibroids and tubal disease increase with aging hampering conception and implantation rates, the various ART procedures have made pregnancy and child birth possible in older women. The oldest woman to conceive spontaneously was 57 years of age and with ART, the oldest was 66 years of age, recorded in literature.²

It may appear fashionable to delay conception but it has many social and medical issues attached to it.

Aim of the study

This study is aimed at comparing the obstetric and perinatal outcomes of pregnancy in women aged 35 years and above with younger women of age group 20-34 years.

METHODS

Study design: An observational study.

This is a prospective comparative study, done over a period of 1 year and 6 months from January 2011 to September 2013 at the Chennai medical college and research hospital, Irungalur, Trichy.

Pregnant women of age 35 years and above at any gestational age were taken into the study population irrespective of the parity. The control population was pregnant women of age 20-34 years of any parity, who were registered in the antenatal clinic on the same day as the study cases. This kind of patient selection largely avoided the problem of selection bias.

Study group: n = 42
Control group: n = 50

Women with multiple gestations were excluded from the study, as problems inherent to multiple gestations itself would confound the results.

All these women were followed right from the time of registration to the postnatal period, and perinatal outcomes were compared.

The presence of preexisting medical disorders, incidence of aneuploidy, miscarriage, pregnancy complications like GDM, preeclampsia, antepartum hemorrhage, need for labour induction and intrapartum factors like requirement of analgesia, duration of first and second stage of labour, instrumental deliveries, caesarean deliveries and PPH were recorded.

The parameters considered for determining the perinatal outcome were, meconium passage, low APGAR score (less than 7 at 5 minutes), presence of malformations, fetal growth restriction (BW <10th percentile) and

macrosomia (BW >95th percentile) and need for NICU admission.

Results thus obtained were analysed with windows SPSS software, statistics were derived and tabulated. Pearson's chi square test was applied as a test of significance, with <0.05 taken as the cut off for P value.

RESULTS

The mean age of women in study group was 37.1 and 27.6 in the control group

14.3% in the study group of patients had assisted conception whereas all of patients in the control group conceived spontaneously.

There were 4 (9.5%) miscarriages in the study group and none in the control group.

The incidence of pre-gestational diabetes, gestational diabetes and preeclampsia was found to be higher in the study group and this was statistically significant (P value <0.0001).

There were 2 (4.76%) of patients with abruption in the study group secondary to severe preeclampsia but none in the control group. There were no patients with placenta previa in both groups

This study did not find any increased incidence of malpresentation in elderly women.

Labour induction rates were lower in the study group compared to the control group where 17.64% of patients had labour induction due to medical complications. 82.35% of women in the control group had labour induction for prolonged pregnancy.

61.9% patients in the study group had Cesarean section. 26.5% underwent vaginal delivery. In the control group, 70% delivered vaginally. The high caesarean rate may well explain the low rate of labour induction in the study group.

42.3% of women in the study group underwent caesarean section for the second time. Of the 15 women who were delivered by primary LSCS, 66.6% were delivered electively. In half the cases, the indication was the patient's desire to get delivered by caesarean section and in the rest, the indication was medical complications like diabetes or severe preeclampsia.

The mean gestational age at birth was 38.1 weeks for the control group and 37.6 weeks for the study group. There were two cases of spontaneous preterm labour in the control group. The study population did not have any case of preterm labour, though delivery was expedited before term in four mothers owing to severe preeclampsia with or without placental abruption.

Also, there was no statistically significant difference in birth weight, fetal growth restriction, meconium stained liquor, rates of NICU admissions between both groups.

However the incidence of low APGAR score (<7 at 5 minutes) was high (10.8%) (P value 0.017) in the study group, most of which were secondary to severe preeclampsia and placental abruption.

None of the babies were found to have congenital anomalies.

Table 1: Distribution of age.

Group	Age	No.	%
Cases	35-39	36	85.70%
	≥40	6	14.30%
Controls	20-25	15	30%
	26-29	31	62%
	30-34	4	8%

Table 2: Distribution of parity.

Group	Primi	Multi
Cases	20 (47.6%)	22 (52.4%)
Controls	29 (58%)	21 (42%)

Table 3: Distribution of BMI.

BMI	Cases	Controls
19-24.9	15 36%	17 34%
25-29.9	16 38%	27 54%
30 and above	11 26%	6 12%

Table 4: Mode of conception.

Mode of conception	Cases (n)	Controls (n)
Spontaneous	36	50
OI with clomiphene	2	-
IUI with clomiphene	1	-
LOD with metformin	1	-
IVF	2	-

Table 5: Pregnancy outcome.

Outcome	Cases n (%)	Controls n (%)
Miscarriage	4 (9.52)	0

Table 6: Medical disorders.

Variable	Cases	Controls	P values
Pre-gest. DM	9	1	0.04
GDM	7	2	<0.0001
Preeclampsia	5	2	<0.0001
Anemia	1	0	NS

Table 7: Antepartum haemorrhage.

Variable	Cases	Controls	P values
Placental abruption	2 (4.76%)	-	<0.0001
Placenta previa	-	-	-

Table 8: Fetal presentation.

Fetal presentation	Cases	Controls	P values
Cephalic	36 (85.7%)	47 (94%)	NS
Breech	2 (4.76%)	3 (6%)	NS
Other	-	-	-

Table 9: Labour induction.

Variable	Cases	Controls	P values
IOL	2 (4.76%)	17 (34%)	Ø 0.0001

Table 10: Pregnancy outcome.

Outcome	Cases n (%)	Controls n (%)
Labour natural	9 (21.42)	35 (70)
AVD	3 (7.1)	0
LSCS	26 (61.9)	15 (30)
Total	42 (100)	50 (100)

Table 11: Caesarean deliveries.

LSCS type	Cases	Controls
Primary-elective	10 (66.6%)	5 (45.4%)
Primary-emergency	5 (23.3%)	6 (54.5%)
Secondary	11 (42.3%)	4 (26.6%)
Total	26 (61.9%)	15 (30%)

Table 12: Perinatal outcomes.

Characteristics	Cases	Controls
Mean GA (week)	37.6	38.1
Mean birth weight (kg)	2.71	2.82
Low APGAR at 5 min (%)	10.8	0

DISCUSSION

As more women decide on delaying pregnancy, the impact is gaining more relevance than never before. The numerous studies available in literature show varied results on the pregnancy outcomes.³ Fortunately so, most of the studies express optimism, towards delayed childbearing.

This study is a prospective comparative study, with unselected patients with singletons. The results show that the maternal and neonatal outcomes are favourable.

There is a substantial increase in the incidence of preexisting diabetes in the study group, consistent - with the studies of authors like Bianco et al.,¹ Gilbert et al.,⁵ B.

C. P. Chan et al.,⁸ Jacobsson et al.,⁷ Meenakshi et al.,¹¹ Ezechi¹⁰ et al., etc.

Advanced aged is found to be an independent risk factor for diabetes.³ Advanced age, along with genetic influence, excess weight gain and life style factors may contribute to the development of impaired glucose tolerance and frank diabetes, well before conception, in these women. The risk of developing gestational diabetes was also found to be high in this study when compared to younger women in the control group.

Other medical complications like chronic hypertension, renal diseases, cardiovascular diseases, autoimmune disorders were not found in any of the patients in the study group.

Advanced maternal age is a definite risk factor for chromosomal derangements. High miscarriage rates are attributed to be cause.⁴ But this study did not find any increased incidence. This may be due to the fact that many of the patients in the study group got registered at the ante-natal clinic, late in the second trimester, leaving the yield inadequate. Of the women screened in the first trimester none showed screen positivity either.

There were two cases of miscarriage, one spontaneous and the other being missed abortion, chromosomal status are not known in both, whereas there were no cases miscarriage in the control group. In the study group one patient with very high HbA_{1C} levels, with past history of anomalous fetus even after extensive counseling opted for pregnancy termination in the first trimester.

In agreement with most of the studies the incidence of preeclampsia was found to be increased. Microvascular endothelial dysfunction which is the basic pathology in preeclampsia, accelerates with advancing age.³ In the study there were two cases of severe preeclampsia that progressed to placental abruption, severely affecting the perinatal outcome. Jane Cleary-Goldman et al.³ reported in contrast that age alone is not a risk factor for hypertensive disorders of pregnancy, their study showing no statistically significant association between age and preeclampsia.

Vascular dysfunction is said to be the cause for placenta previa also, the incidence of which increases with age as quoted by large studies like those of Bianco et al., Gilbert et al., Chan et al., Cleary-Goldman et al., Joseph et al., and most other authors. Gilbert et al., reported eightfold increase in older women, even when controlled for prior caesarean delivery, induced abortion and parity. But this study had no patients with placenta previa.

The rate of labour induction was not high in the study group in contrast to the reports by Prysak et al., Chan et al., and Joseph et al., who found increased induction rates among elderly nulliparae. But the rate of primary elective caesarean deliveries were high. This may also be one of

the reasons for the low induction rates. In the control group a few cases were induced following medical complications and for the rest, the indication was prolonged pregnancy.

The incidence of assisted vaginal deliveries was high in the study group, the indication for most being “failed maternal forces”. It is possible that decreased myometrial efficiency occurs with age.³ Most authors support this finding and they also found increased rate of labour analgesia and anal sphincter tears in elderly women.

Comparison with the control group as with the indication for operative deliveries is not available, as there was no case of assisted vaginal delivery in the control group.

The high rate of primary elective caesarean section in the study group may explain the low induction rates. The indication for elective caesarean in most cases was either medical complications like GDM or, the inclination of both the patient and the obstetrician, towards “safer delivery” of the baby, as these pregnancies are considered precious by both. This fact is quoted in most studies.

The incidence of malpresentation was the similar in both groups.

Though there were significant differences in the occurrence of medical complications which affect the perinatal outcomes this study did not show poor fetal or neonatal outcomes. The incidence of FGR and macrosomia also were not high. There were no cases of preterm birth either.

Our hospital being a tertiary centre where meticulous and close fetal surveillance is feasible may be one of the reasons why the neonatal outcomes were good even in mothers with high risk for poor perinatal outcome.

The study group showed a significant difference in the incidence of low APGAR score (<7 at 5 minutes) secondary to placental abruption and meconium passage. But there was no case of perinatal mortality. Joseph et al. reported 46% increased incidence of perinatal morbidity and mortality among women aged >35 years.

Cleary-Goldman et al. also reported high perinatal mortality among women aged 40 years and above. The recent studies clearly state that the perinatal complications are more likely even in women without significant pregnancy complications that affect the fetal outcome.

The Indian study by Meenakshi et al., shows significant difference in low APGAR scores at 5 minutes but no increase in perinatal mortality. As rightly said by Joseph et al., older women may take encouragement from the fact that the overall Perinatal Mortality Rates are at their lowest worldwide and also a further lowering can be achieved through lifestyle modification measures.

CONCLUSION

Though there is significant association between maternal age and medical disorders that complicate pregnancy, the perinatal outcomes are optimistic as evident by various larger studies.

The limitation of this study is that the sample size is very small, often insufficient to draw a significant association between age and many other variables like placenta previa, malpresentation, labour induction etc.

The other drawback is that confounding factors like, BMI, parity and socioeconomic status are not well controlled.

The good pregnancy outcomes observed in older mothers even prompted authors like Chan et al., to suggest that the threshold defining, 'advanced maternal age' be raised to 40 from 35 years.

This kind of optimism is of prime importance in the current era of more and more women electing to delay childbearing. It is appropriate to conclude that elderly mothers with meticulous pre-pregnancy evaluation, prenatal care and surveillance can expect a good perinatal outcome.

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