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Original Research Article

Study of pregnancy outcome in elderly gravida

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ABSTRACT

Background: Elderly gravida which is defined as age of mother as 35 years or more at the time of delivery has become increasingly common in last two to three decades. This accelerating demographic shift is of major clinical and public health concern, because advanced maternal age has consistently been associated with adverse pregnancy outcomes.
Methods: An observational prospective study consisting of 120 pregnant women. All participants were divided into Study group and Control group.
Results: Women of advanced maternal age have higher frequency of antenatal complications leading to early pregnancy termination and operative interference. There is significant increase in the incidence of adverse perinatal outcome due to preterm deliveries and NICU admission and neonatal death.
Conclusions: With improved health services and better prospects of women who are >35 years of becoming pregnant, these pregnancies are fraught with complications. Women should realistically appraise the risks of pregnancy in later life. Hence these women should be counselled, and their complications managed with utmost care.

Keywords: Antenatal complication, NICU

INTRODUCTION

Pregnancy and child birth are normal physiological processes and outcomes of most of the pregnancies are good. In India, women of child bearing age constitute 19%. Data suggests that around 40% of all women develop some complication.[1] One such risk factor is elderly pregnancy that leads to many complications during pregnancy, labor and also for the baby.

In the developed world and in developing countries in high socioeconomic group, the changing pattern of becoming pregnant at an advanced age can be attributed to various reasons. The reason could be changes in the structure of family with more late marriages or remarriages, women's pursuit of higher education, carrier advancement, and advances in assisted reproductive technique and availability of effective and safe contraceptives.[2] But in developing countries, the scenario is different in low socio economic group. The women tend to become pregnant at advanced age due to concept of large family size, sometimes desire for male child and moreover due to lack of knowledge of availability of effective contraception.[3] Current evidence suggests a strong association with increased risk of miscarriage, chromosomal abnormalities, spontaneous abortion, ectopic pregnancy, preterm delivery, prolonged labour, low birth weight, intrauterine fetal death, pregnancy induced hypertension, gestational diabetes and delivery by caesarean section. In this study, our endeavour would be to evaluate maternal and perinatal outcome in elderly pregnant women.

METHODS

This prospective observational study was conducted at tertiary care hospital, Mumbai after getting clearance from Institutional Ethical Committee and scientific committee. Total Sample size of study was 120.

All participants were divided into two groups:

- Group 1 (Study group): This group included 60 women aged 35 years or more at the time of delivery during this study period.
- Group 2 (Control group): This group included 60 women aged between ≥18 to <35 years being included in the study.

Inclusion criteria

- Cases: pregnant women ≥35years of age
- Controls: pregnant women ≥18 to <35 years of age.

Exclusion criteria

- pregnant women <18years.

Sample was collected from ANC OPD and patient admitted in labour room.

History regarding age, parity, duration of gestation, menstrual history, medical surgical, obstetric history and history of any complications in past and present pregnancy was noted. A detailed clinical examination was done.

Routine blood test advised at booking visit includes CBC, Blood grouping and Rh typing, fasting and postprandial blood sugar level, thyroid profile were done.

Screening for infections which affect both mother and fetus include HIV, hepatitis B, syphilis. Urine routine and microscopic examination was done.

USG in first trimester to confirm fetal viability and nuchal translucency and detailed ultrasound at 18-20 weeks of pregnancy to exclude congenital malformation was done.

At subsequent visits weight gain during pregnancy was monitored. BP monitoring was done. Patients have systolic pressure ≥ 140mmHg and/or diastolic blood pressure ≥ 90 mmHg, on two occasions at least 6 hours apart within 7 days were considered hypertensive and evaluated for the same.

The patients were followed up by observing the age-related complication during pregnancy, onset of labour, mode of delivery, if delivery done by caesarean section, the indication was noted. The condition of baby assessed by birth weight, Apgar score and need for NICU admission. Patients were followed up till 42 days postpartum.

Statistical analysis

Data analyzed using Pearson's chi square test and unpaired t test.

RESULTS

Case control cross tabulation for parity

Table 1: Distribution of gravid status among the study population.

Parity	Study group	Control group	Total
Primigravida	15	28	43
	25.00%	46.70%	35.80%
Multigravida	45	32	77
	75.00%	53.30%	64.20%
Total	60	60	120
	100.00%	100.00%	100.00%

In the study group, number of primigravida was 15 (25%) and Multigravida patients were 45 (75%) compared to comparative group number of primigravida were 28 (35.80%) and Multigravida patients were 32 (53.3%) respectively. The difference in two groups was statically significant (p <0.013). Heija A et al found similar result with significantly higher parity in advancing maternal age (p= 0.0001).[4]

Pre existing medical disorder

Table 2: Pre-existing medical disorders.

Disease	Study group	Control group	p value
Thyroid disorder	6 (10%)	3 (5%)	0.299
Hypertension	2 (3.33%)	0	0.154
Diabetes mellitus	4 (6.67%)	0	0.042

Hypertension was seen only in study group (3.33%) and not in control group but it was statistically not significant (p =0.154). Both patients in study group developed superimposed preeclampsia during antenatal period. Meenakshi ST et al found similar result with increased number of hypertension cases in patients with advanced maternal age group but the difference was statistically not significant.[5]

Diabetes mellitus was seen in (6.67%) patients in study group and not in control group and the finding was statistically significant (p=0.042). All four cases had associated preeclampsia during antenatal period; mode of delivery was LSCS (2 emergency LSCS, 2 elective LSCS). All four babies required NICU admission with 2 neonatal deaths. Similar results were found by Sahu T

Meenakshi et al found similar result with increased number of diabetes mellitus cases (4.1%) in pregnant women with advanced age group compared to control group (0.7%) and the difference was statistically significant (p=0.02).[5]

Antepartum complications

Table 3: Hypertensive disorders of pregnancy.

Hypertensive disorders of pregnancy	Study group		Control group		Total	
Preeclampsia superimposed on chronic hypertension	2	3.3%	0	0	2	5.5%
Preeclampsia	14	23.3%	3	5%	17	14.2%
Eclampsia	2	3.3%	0	0	2	5.5%
Total	18	30%	3	5%	21	17.5%

When we come across the ante partum complications of pregnancy hypertensive disorders of pregnancy (preeclampsia and eclampsia) were significantly associated in elderly gravid patients and the difference was statistically significant (p=0.0001). Among 18 patients there was preterm delivery in 10 cases and 8 patients delivered at term. Induction of labour was done in 9 patients among whom 5 patients delivered vaginally and in 4 patients delivered by LSCS. Two eclampsia patients presented at 28and 34 weeks of gestation, delivered vaginally had IUFD. Most of the babies had poor Apgar score (<7) and 11 babies had NICU admission (61%). Among NICU admissions 5 cases were neonatal deaths. In control group preeclampsia seen in 3 patients, among whom 1 patient had abruption and IUFD at 29 weeks; in second patient emergency LSCS (at 35 weeks) done in view of preeclampsia with abruption, baby weight was1.2 kg with Apgar score 4 at 5min was neonatal death. Nojomi M et al found similar result with 18.8% cases in pregnant women with age≥ 35years compared to 9.6% cases in control group (p=0.02).[6]

Diabetes mellitus

Table 4: Distribution of diabetes mellitus.

	Study group	Control group	Total
Pregestational diabetes mellitus	4	0	4
	6.6%	0.0%	3.3%
Gestational diabetes mellitus	6	0	6
	10%	0%	5%
Total	10	0	10
	16.67%	0%	8.3%

Among patients in study group 16.67% patients had diabetes among which 6.67% cases were pregestational diabetes mellitus and 10% were Gestational diabetes mellitus, finding was statistically significant. (p=0.012 for GDM alone). Among gestational diabetes patients 2 delivered vaginally and in 4 patients LSCS was done however indication for LSCS in these patients was not GDM alone. One patient (42 year, primigravida) had associated preeclampsia with IUGR and preterm elective LSCS done at 34 weeks, baby weight was 1.1 kg and Apgar at 5 min was 8. Two patients were Multigravida with previous LSCS, baby weight of both patients was 3.8 kg. In fourth patient induction of labour at term was done but emergency LSCS was done in view of fetal distress, baby weight was 3.1 kg. All babies were admitted in NICU. Similar results were found by Verma S with increased number of gestational diabetes mellitus cases (8.7%) in pregnant women with advanced age group compared to control group (1.4%) and the difference was statistically significant (p=0.02).[7]

Intrauterine growth restriction

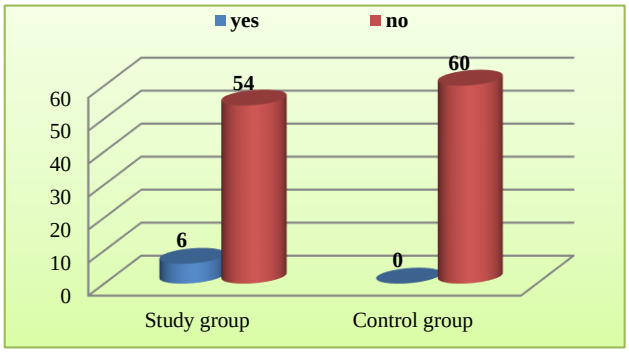

Figure 1: Distribution of IUGR cases.

During study it was found that IUGR was very common in elderly gravid in comparison to control group patients (8.3% cases in study group and 0.0% in control group) and highly significance statistical association was found (p=0.022). All IUGR cases were associated with preeclampsia and elective LSCS was done in all cases. All babies required NICU admission with neonatal death in 2 cases. Eleje GU et al found similar result with more cases of IUGR in elderly gravida compared to control group (p<0.05).[8]

Gestational age at the time of delivery

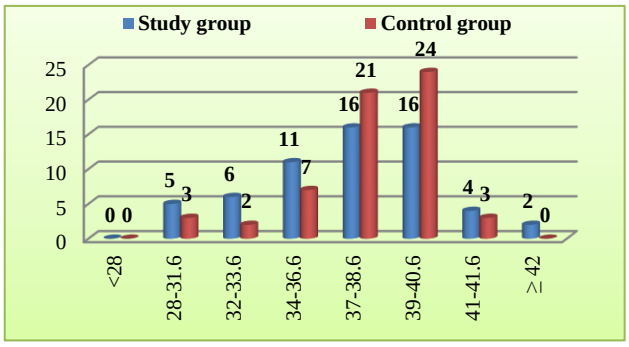

Figure 2: Distribution of gestational age at the time of delivery.

Preterm birth was more common with elderly gravida and the most common cause for preterm deliveries was preeclampsia. Among 22 preterm deliveries in study group 11 were associated with preeclampsia and eclampsia, 6 preterm labour, 3 premature rupture of membranes and 1 placenta previa. Among 11 preterm births 2 were IUFD and 1 was neonatal death. NICU admission required in 6 patients. In control group there was 12 preterm deliveries and the most common cause for preterm deliveries was premature rupture of membranes (6 patients), 4 patients had preterm labour and 2 patients were preeclampsia. There was one IUFD, one neonatal death and 8 patients required NICU admission. Although preterm deliveries were more common in elderly gravida patients but difference is not statistically significant (p =0.31) with mean gestational age for study group was 37±3.3 weeks and for control group was 38±2.5 weeks. Seoud MA et al found similar results with higher number of preterm delivery (16%) in elderly gravida patients compared to younger patients (8%) and the difference was statistically not significant.[9]

Onset of labour and mode of delivery

Table 6: Type of onset of labour.

Onset of labour	Study group	Control group	Total
Induction of labour	16	14	30
	26.7%	23.3%	25.0%
LSCS	14	5	19
	23.3%	8.3%	15.8%
Spontaneous onset of labour	30	41	71
	50.0%	68.3%	59.2%

Table 7: Indication for induction.

Study group	
Preeclmpsia	9
GDM	1
PROM	1
Postdatism	2
Total	16
Control group	
PROM	10
Postdates	3
Oligohydramnios	1
Total	14

In patients of study group spontaneous onset of labour was seen in 50% cases, induction of labour was done in 26.7 % patients and LSCS was done in 23.3%. In control group spontaneous onset of labour was seen in 68% patients, induction of labour was done in 23% and LSCS was done in 9% patients and the difference was statistically significant. In study group 4 LSCS were elective and in control group 4 LSCS were elective LSCS. Gharoro EP et al the elective caesarean section rate for elderly gravida patients was 21.05% and for control group was 1.35% and the difference was statistically significant (p<0.05).[10]

Comparison of birth weight of babies among two groups

Table 7: Birth weight of babies among two groups.

Birth weight (kg)	Study group	Control group	Total
<1 (ELBW)	3 (5%)	1 (1%)	4
1-<1.5 (VLBW)	3 (5%)	1 (1%)	4
1.5 - <2.5 (LBW)	14 (23%)	9 (15%)	23
≥2.5 TO <4	40 (67%)	49 (82%)	89
Total	60	60	120

In study group babies with ELBW (extreme low birth weight), VLBW (very low birth weight) and LBW (low birth weight) were more in number then in control group. The most common maternal factors associated with low birth weight was hypertensive disorders of pregnancy (60%), preterm birth (30%).Although the lower baby birth weight was more common in study group, but the difference was statistically not significant (p value=0.089) Mean birth weight for study group was 2.5±0.712 kg and for control group it was 2.7±0.55 kg.

Table 8: Perinatal outcome in control group.

Apgar score	Number of babies	NICU admission	Perinatal outcome
0-3	1 (1.7%)	----	IUFD
4-6	2 (3.3%)	2 (3.3%)	2 NND
≥ 7	57 (95%)	9 (15%)	0
Total	60 (100%)	11(18.5%)	2 NND

During study period in my observation it was found that rate of NICU admission in neonates of elderly gravida was significantly high i. e. 27 (45.0%) neonates were admitted in NICU as compare to control group patients neonates i. e. 11 (18.3%). That rate of NICU admission was statistically significant (p=0.002).

DISCUSSION

Pregnancy in elderly women ≥35 years of age is considered a high risk pregnancy. It has been studied by many to see the effect of age on maternal and perinatal outcome. This study was conducted to study of pregnancy outcome in elderly gravida over a period of 12 months at Lokmanya Tilak Municipal Medical College and General Hospital Mumbai, tertiary level teaching research and referral institute. The present study included 120 patients, 60 women were in study Group age ≥35 years) and 60 patients in control group (≥18-<35years). Maximum number of cases in study group was multipara (75%) as compared with the control group in which multiparity was seen in 53.33% of patients. Multigravida patients in study group were more in number and this may be because in our setup more number of patients was from low socioeconomic population and the scenario is

different in low socio economic group. The women tend to become pregnant at advanced age due to lack of knowledge of availability of effective contraception, due to concept of large family size and sometimes desire for male child. Chibber R also find more number of Multigravida 42% in study group in comparison to 26% in control group.[11]

Pre-existing medical disorder

In present study, we reported significantly higher incidence of diabetes mellitus in study group (p=0.04). Sahu TM et al, found the incidence of thyroid disorder, cardiac disease and epilepsy to 1.1%, 3.7% and 0.35% respectively in the patient aged more than or equal to 35 years.[5] They also reported significantly higher incidence of diabetes in the study group (4.1%) as compared to controls (0.7%).

Antenatal complications

Hypertensive disorders of pregnancy

Incidence of hypertensive disorders of pregnancy (preeclampsia and eclampsia) was higher in study Group 30% as compared to 5% in control group, the difference was statistically significant (p=0.0001). In present study we had two patients with eclampsia, had preterm vaginal delivery and babies were IUFD. Preeclampsia and its complications (IUGR and Oligohydramnios) were most common indication for elective as well as emergency LSCS (48% of all LSCS); NICU admissions were also more than the control group (61%). Naqvi MM et al, found pregnancy induced hypertension was commonest complication in elderly primigravidae (24.35% vs 6.41%, p= 0.05).[12] Ustun Y et al, found hypertensive states in 22.8 % of women aged >35 years as compared to 10.6% in those younger than 35 years.[13]

Diabetes mellitus

Incidence of pregestational and gestational diabetes both increases with increasing maternal age. In our study there were 16% cases with diabetes with pregnancy, among which 6% were known case of diabetes. Lscs rate was higher (40%) because of other associated obstetric complications like preeclampsia CPD. Verma S also found similar results with increased number of gestational diabetes mellitus cases (8.7%) in pregnant women with advanced age group (p=0.02).[7] Nojomi M et al also found gestational diabetes more in elderly gravida compared to their younger counterparts.[6]

Antepartum haemorrhage

APH noted in 6.6% cases in study population and 5% cases in control group, there is increase in cases of placenta previa as in our setup with increasing age parity increases and previous LSCS rates also, and these are independent risk factor increasing chances of placenta previa. Nojomi M et al, found the percentage of antepartum haemorrhage was higher in women aged 35 years or older than younger women (5.7% vs 3.8%).[6] Ustun Y et al, found antepartum haemorrhage in 4.8% 0f women aged ≥35 years as compared to 2.9% in those aged below 35 years (p=0.021).[13] Jolly M also found similar results with increase in number of placenta previa and placental abruption.[14]

Labour and mode of delivery

Out of 60 patients in study group who went into labour it was spontaneous in 50% and induced in 26.7% and 23.3% patients taken up for elective LSCS, whereas out of 60 patients in control group, it was spontaneous in 68.3% and induced in 23.3% and elective LSCS was done in 8.3% the difference was statistically significant (p=0.04). Jolly M et al, found the rate of induction to be 16.8% for women aged <40 years and 19.22% for those aged >40 years.[14] Higher rates of induction may be because of higher risks of antenatal complications like hypertensive disorders in patients of advanced maternal age.

In present study there was statistically significant difference in the mode of deliveries between the two groups. Rates of caesarean section were higher in the study group 43.3% as compared to 25% in control group. Vaginal, caesarean and instrumental deliveries were, 53.3%, 43.3% and 3.3% respectively case group and 66.7%, 25% and 8.3% respectively for control group but the result was statistically not significant. Edge VL and Laros RK, found the incidence of caesarean section to be 40% in women aged >35 years as compared to 18% in those aged 20-29 years.[15] Naqvi MM et al, found more (30.76%) of elderly group were delivered by caesarean section as compared to 16.02% in young group.[12] Ustun Y et al also found statistically significant difference in the mode of deliveries in the two groups.[13] They found rates of caesarean section as 57.9% in those aged >35 years as compared to 44.8% in those aged <35 years. Majority of caesarean sections in our study group were performed because of malpresentation, cephalopelvic disproportion and medical disorders. Edge VL et al, found that 29% of the caesarean sections performed in women >35years of age were elective as compared to 15% in the women of age <35 years with an overall rate of 11% and 3%.[15]

Perinatal outcome

In elderly gravida babies with ELBW, VLBW and LBW were more in number (5%,5% and23% respectively) then in control group (1%, 1% and 9% respectively). The average birth weight of babies was 2.53±0.71kg and 2.7±.55 kg in the cases and control respectively and the difference was not statistically significant (p=0.089). Ustun Y et al, also did not find any significant difference in the birth weight of babies born to mother <35 years and those born to mothers >35 years of age.[13] Edge VL et al, in their study found low birth weight babies in 10% of

older women as compared to 7.7% in their younger counterparts.[15]

Apgar score <7 at 5 minutes, indicating fetal distress, was observed in 15% of newborns in our study group as compared to 5% in the comparative group and the difference was statistically significant. Sahu TM et al, also found significant differences between the two groups, 13.5% for the study group and 4.5% for the control group.[5]

There was significant difference in the NICU (neonatal intensive care unit) admissions between two groups. These were 45% in cases and 18.3% in the control group and statistically significant. There was significantly high perinatal mortality in the cases i.e. 16.5% as compared to that in the Group B i.e. 5%. Edge VL et al, found perinatal mortality was 1.8% in women aged 20-29years as compared to 2.9% in women aged >35years.[15]

CONCLUSION

In our study we concluded that there was increased of morbidity and operative interventions required with increasing maternal age. Among antenatal complications, women of advanced maternal age have higher frequency of preeclampsia and eclampsia, gestational diabetes, IUGR, Oligohydramnios leading to early pregnancy termination and need for LSCS. There is significant increase in the incidence of adverse perinatal outcome in the form of higher incidence of babies with low birth weight, low Apgar score and NICU admission and neonatal death. No statistically significant increase in the incidence of postpartum complications was seen in the study group. With improved health services and better prospects of women who are >35 years of becoming pregnant, these pregnancies are fraught with complications. Women should realistically appraise the risks of pregnancy in later life. Hence these women should be counselled and their complications managed with utmost care. As more women delay childbearing, older parturient constitute a large and growing fraction of our obstetric patient population.

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