

## OUTCOME OF PREGNANCY IN ELDERLY GRAVIDAE

Asha P. S<sup>1</sup>, Sapna S<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Government T. D. Medical College, Alappuzha, Kerala.

<sup>2</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Government T. D. Medical College, Alappuzha, Kerala.

### ABSTRACT

#### BACKGROUND

Advanced maternal age, generally held to signify 35 years of age at the time of delivery is the term that implies decreased fertility and increased risk. The changing role of women in the work place with more career opportunities available, has undoubtedly affected childbearing. Availability of assisted reproductive techniques to older women has allowed many to achieve pregnancy and childbearing.

The objectives of the study were- to study the maternal and perinatal outcome in gravidae more than or equal to 35 years of age and to compare the outcome with younger women aged between 20-29 years.

#### MATERIALS AND METHODS

This prospective observational study was conducted in a tertiary care centre in South India for a period of one and a half years. Study group included 100 elderly gravidae and 200 younger gravidae and their neonates.

#### RESULTS

The incidence of hypertensive disorders, gestational diabetes, preterm labour, malpresentations, placenta previa, post-partum haemorrhage and caesarean rates were found to be increased in elderly gravidae. No difference was found in the incidence of abruptio placentae and labour induction. Low birth weight babies, foetal distress and neonatal ICU admissions were increased among neonates of elderly gravidae with no difference in Oligamnios, polyhydramnios and Doppler abnormalities among the two study groups.

#### CONCLUSION

Early booking, close supervision in the antenatal and intrapartum period, active management of labour and appropriately trained obstetric interventions are essential for an optimal outcome in the management of elderly gravidae.

#### KEYWORDS

Elderly Gravidae, Pregnancy Outcome, Caesarean Section.

**HOW TO CITE THIS ARTICLE:** Asha PS. Sapna S. Outcome of Pregnancy in Elderly Gravidae. J. Evid. Based Med. Healthc. 2018; 5(12), 1095-1099. DOI: 10.18410/jebmh/2018/226

#### BACKGROUND

As women increasingly delay childbearing, questions surrounding the counselling and management of older mothers have become central to the practice of obstetrics. Advanced maternal age; generally held to signify 35 years of age at the time of delivery is the term that implies decreased fertility and increased risk.<sup>1</sup> Reasons for shift towards childbearing are multiple. Women are attaining higher educational levels than in previous decades, age of first birth and interval between births increases as her status increases. The changing role of women in the work place with more career opportunities available, has undoubtedly affected childbearing. Control of fertility with increased contraceptive options plays a part. Availability of assisted reproductive techniques has allowed women to delay childbearing.<sup>2</sup> Oldest woman to conceive a

pregnancy naturally was 57 years old, mothers as old as 66 years of age have been reported using ART.

#### Aims and Objectives

1. To study the maternal and perinatal outcome in elderly gravidae more than or equal to 35 years of age.  
Maternal outcome studies include the incidence of gestational hypertension, gestational diabetes mellitus, preterm delivery, fibroid complicating pregnancy, placenta previa, abruptio placenta, malpresentations, labour induction, caesarean rates and postpartum haemorrhage. Perinatal outcome studied are the incidence of low birth weight babies, Oligamnios, polyhydramnios, Doppler abnormalities, intrauterine death, neonatal death, foetal distress and ICU admission.
2. To compare the outcome with younger gravidae 20-29 yrs. of age.
3. To identify whether there is significant difference between the outcomes in two groups.

#### MATERIALS AND METHODS

This prospective observational study was conducted at a Medical College Hospital in South India for a period of 18 months. Study group included 100 elderly gravidae with age more than or equal to 35 years at delivery and 200

*Financial or Other Competing Interest: None.*

*Submission 02-03-2018, Peer Review 09-03-2018,*

*Acceptance 17-03-2018, Published 19-03-2018.*

*Corresponding Author:*

*Dr. Sapna S,*

*Assistant Professor,*

*Department of Obstetrics and Gynaecology,*

*Government T. D. Medical College,*

*Alappuzha, Kerala.*

*E-mail: sapnaspillai@gmail.com*

*DOI: 10.18410/jebmh/2018/226*



controls of 20- 29 years of age and their neonates. Elderly gravidae in this study included primigravidae and multigravidae. Twin gestation, deliveries before 20 weeks and babies less than 500 gm were excluded. Outcomes such as spontaneous abortions and induced abortions for chromosomally abnormal and anomalous fetuses were also not included. Consent of the patient was taken for study. Patients admitted in the labour room were also included in the study. Obstetric history was taken using a detailed proforma.

General examination and per vaginal examinations were done and partogram was put in active phase of labour. Patient monitored for intrapartum and postpartum complications. Modes of delivery, maternal and neonatal complications were noted. Neonates were followed up till discharge. Results were compared with that of 200 gravidae of 20- 29 yrs. of age group. Maternal age, gestational age, age at marriage, duration of marriage and treatment of infertility were noted. Maternal outcome measures studied were incidence of gestational hypertension (blood pressure more than or equal to 140/90 mm of Hg on two occasions at least 6 hours apart after 20 weeks of gestation without significant proteinuria), preeclampsia (gestational hypertension with significant proteinuria), gestational diabetes mellitus (carbohydrate intolerance of variable severity -with onset or first recognition during pregnancy, two or more abnormal values in 100 gm GTT or 2 hr PPBS more than 140 mg/dl in 75 gm GTT), preterm delivery (delivery before 37 completed weeks of gestation), malpresentation, placenta previa (placental margin within 3 cm of internal os), abruptio placenta (premature separation of a normally situated placenta), labour induction, caesarean deliveries and post-partum haemorrhage (blood loss more than 500 ml in a vaginal delivery and more than 1000 ml in a caesarean delivery) and maternal mortality.

Neonatal outcomes studied were incidence of low birth weight babies (EFW less than 2.5 kg), oligohydramnios (AFI less than 5 cm), polyhydramnios (AFI more than 25 cm), Doppler abnormalities, intrauterine death, neonatal death, foetal distress (5' APGAR less than 7) and ICU admissions.

#### Statistical Analysis

Descriptive statistics was used to calculate the mean SD. Independent Student t test was performed to compare the means of parameters of both groups. A 95% limit and 5% level of significance was adopted. A P-value of less than 0.05 was considered significant.

## RESULTS

A total of 100 cases and 200 controls were included in the study. Majority of elderly gravidae belonged to 35-37 year age group (Table-1). The oldest mother was 42 years old. 53% of gravidae were recently married and 9% married for more than 10 years where as 92% of the controls recently married and 2% married for more than 10 yrs. (Table-2). In the study group infertility treatment was significantly high (28% vs 2.5%,  $P=0.001$ ) (Table-3). One of the

patients conceived with intrauterine insemination. Hypertensive disorders constituted 61% of all medical disorders closely followed by diabetes mellitus (30%) (Table-4). There was statistically significant association between maternal age and incidence of gestational diabetes mellitus (21% vs. 5%) and pregnancy induced hypertension (42% vs. 13%), both p-values less than 0.001. Preterm labour was also significantly higher among elderly gravidae (20% cases vs 2% controls, p value less than 0.001). 50% preterm labours among elderly gravidae were iatrogenic demanding early intervention due to associated obstetric complications. 15% elderly gravidae had associated uterine fibroid compared to 2.5% controls which was statistically significant (p value less than 0.001) and 5 of them necessitated caesarean delivery. 12% cases had statistically significant malpresentations (p value =0.004) with 8% incidence of breech presentations. Advanced maternal age had statistically significant association with incidence of placenta previa (9% vs 0%, p value less than 0.0001) but not with abruption (2% cases vs. 1% controls). Both elderly gravidae and younger gravidae had same rates of induction (36% vs. 28.5%), hypertensive disorders and past date the most common indication of induction respectively (Table-5). 34% of cases delivered vaginally, 59% had caesarean section and 7% had instrumental delivery compared with 61%, 31% and 8% of controls respectively. 67% elderly gravidae had elective caesarean delivery. (Table-6). The most common indication for caesarean section was failed induction (16.9%) followed by breech presentation (13.6%) and placenta previa (11.9) (Table-7). The commonest indication in younger gravidae was foetal distress. 46% of cases had low birth weight babies (defined as less than 2.5 kg) compared to 31.5% controls which was statistically significant (p-value=0.014). Of other perinatal outcomes foetal distress and ICU admissions were significantly higher among elderly gravidae whereas the incidence of Oligamnios, polyhydramnios and Doppler abnormalities did not show much difference. There were 9 cases of intrauterine deaths and 3 cases of neonatal deaths among elderly gravidae (Table-8).

Age	Numbers
35-37 yrs.	55
38-40 yrs.	43
More than 40 yrs.	2

**Table 1. Age Distribution of Mothers**

Duration of Marriage	Case	Control
Less than 1 year	53	92
1-5 yrs.	31	98
5-10 yrs.	7	8
More than 10 yrs.	9	2

**Table 2. Duration of Marriage**

Infertility Treatment	Case		Control		Total	
	N	%	N	%	N	%
No	72	72	195	97.5	267	89
Yes	28	28	5	2.5	33	11
Total	100	100	200	100	300	100

**Table 3. Comparison of infertility treatment among cases and controls**

Medical Complication	Numbers
Hypertensive disorders	42
Diabetes mellitus	21
Heart diseases	2
Epilepsy	1
Old case of CVA	1
Hypothyroidism	1
Anaemia	1

**Table 4. Maternal Medical Complications**

Maternal Complications	CASE	%	Control	%	P-value	Significance
GDM	21	21	10	5	.001	S
Gestational Hypertension	42	42	26	13	.001	S
Preterm Labour	20	20	12	6	.001	S
Malpresentation	12	12	7	3.5	.004	S
Placenta Previa	9	9	0	0	.000	S
Abruptio Placenta	2	2	2	1	.477	NS
Labour induction	36	36	57	28.5	.185	NS

**Table 5. Maternal Complications**

Delivery	Case		Control		Total	
	N	%	N	%	N	%
Normal	34	34	122	61	156	52
CS	59	59	62	31	121	40.3
Instrumental	7	7	16	8	23	7.7
Total	100	100	200	100	300	100

**Table 6. Comparison of Mode of Delivery Among Cases and Controls**

Indications	Number	Percentage
Severe preeclampsia	2	3.4
Elderly Gravida, GDM	2	3.4
Placenta previa	5	8.5
Abruptio placenta	3	5.1
Failed Induction	10	16.9
1st degree CPD, failed trial	5	8.5
Protracted active phase	3	5.1
NRFHR	6	10.2
IUGR, Oligamnios	6	10.2
Elderly gravida previous myomectomy	1	1.7
Macrosomia	1	1.7

**Table 7. Indications of Caesarean delivery**

Foetal Complications	Case	%	Control	%	P-value	Significance
LBW	46	46	63	31.5	.015	S
Oligamnios	18	18	21	10.5	.069	NS
Polyhydramnios	3	3	2	1	.202	NS
Doppler Abnormalities	4	4	49	2	.311	NS
Foetal Distress	13	13	9	4.5	.008	S
ICU Admission	20	20	16	8	.003	S
IUD	9	9	2	1	.001	S
NND	3	3	0	0	.014	S

**Table 8. Foetal Complications**

## DISCUSSION

A total of 100 cases and 200 controls were included in the study. Mean parity in the study group was 1.68 and in the control group it was 0.72. The mean gestational age at delivery for elderly was 36 weeks compared to the gestational age in control which was 39 weeks. This may be attributed to the associated medical and obstetric complications which necessitated early intervention. In the study group infertility treatment was significantly high. One of the patients conceived with intrauterine insemination. Hypertensive disorders were the most common obstetric complication and were present in 42% of cases and 13% of controls. Severe pre-eclampsia occurred in around 20 % cases. Of the hypertensive disorders 50% had severe pre-eclampsia. There were 4 cases of chronic hypertension, none with super-imposed pre-eclampsia. The incidence of hypertensive disorders in this study was higher compared to study by Yasin and Beydoun et al<sup>3</sup> (16%). Another Indian study from Lucknow by Sahu T Meenakshi et al<sup>4</sup> showed a statistically insignificant increase in the incidence of gestational hypertension.

Gestational diabetes occurred in about 21% cases and 5% controls and increased incidence was statistically significant. This was comparable to studies by Tan AS<sup>5</sup> published in Singapore medical journal and Grimes D<sup>6</sup> et al. Increased incidence of preterm labour (20%) was comparable to studies by Pugliese<sup>7</sup> et al and a large Swedish cohort study by Cnattingius<sup>8</sup> et al. 50% of preterm deliveries were iatrogenic, in patients with obstetric complications necessitating early intervention. 15% of cases had fibroids complicating their pregnancy, and there were five caesarean sections for the same. Placenta previa occurred in 9% cases and the results are comparable to a study by Gilbert<sup>9</sup> et al which showed 10-fold increased risk of placenta previa in elderly gravidae. This is slightly higher when compared to a study by Abu-Hieja et al<sup>10</sup> where the incidence was 4.4%. Abruption occurred in 2% cases and 1% controls. Incidence of abruption was similar to control group. This finding was contradictory to a study conducted by maternal, foetal and neonatal medicine in 2003<sup>11</sup> and an Indian study in 2017 by Dixit PV<sup>12</sup> et al. Malpresentation occurred in 12% of cases and of them 8 cases were breech presentation. The increased incidence of breech presentation is comparable to a study by Rayl, Gibson and Hickok.<sup>13</sup> 36% of elderly gravidae were induced. The induction rates were similar in both groups. Hypertensive

disorder was the major indication for induction in elderly, and past date was the major reason for induction in younger gravidae. 59% of elderly gravidae were delivered by caesarean compared to 31% controls. Grimes<sup>6</sup> et al reported a caesarean section rate of 17% in elderly gravida. These figures are much lower than that reported by other workers, the incidence of caesarean section in women aged >35 years was found to be 40% as compared to 18% in those aged 20-29 years by a study conducted by Edge VL and Laros RK.<sup>14</sup> 7% had instrumental deliveries. In the recent past, it was noticed, and concerns were raised that women with advanced age were undergoing more CS than their counterparts of younger age groups. Seoud et al<sup>15</sup> reported that 31.3% of elderly primigravidae underwent CS, where as Abu Heija et al<sup>10</sup> found in their study, an incidence of 32.4% which was three-fold higher as compared to the younger women. Failed induction was the most common indication (16%) for CS in the study followed by placenta previa (11.9%), non-reassuring foetal heart rate patterns (10.2%) and intrauterine growth restriction (10.2%). For younger gravidae foetal distress was the most common indication. Postpartum haemorrhage occurred in 6% cases and no cases of PPH were found in controls. In the perinatal outcomes studied, low birth weight babies occurred in 46% cases and 31% controls. The high rates of small for gestational age infants is not comparable with western studies except for a study by Cnattingius<sup>8</sup> et al, probably due to difference in ethnic groups studied. The increased likelihood of women delivering SGA babies was related to poor placental perfusion and transplacental flux of nutrients (Godfrey<sup>16</sup> et al, 1999). No statistically significant difference in the rates of Oligamnios (18%), polyhydramnios (3%) and Doppler abnormalities was found in the study in contrast to a study by Martínez-Frías.<sup>17</sup> There were 9 cases of intrauterine deaths and 3 neonatal deaths in elderly gravidae. Majority of them were attributed to severe preeclampsia. No intrauterine or neonatal deaths occurred in the control group. A case of multiple congenital anomalies was present in the study group. The rest of the anomalies which were terminated at earlier gestational age were not included in the study. No case of Down syndrome occurred.

The incidence of foetal distress (13%) and neonatal ICU admissions (20%) was increased in the elderly population which was statistically significant. Same finding was also noted by Berkowitz<sup>18</sup> et al. The puerperium was uneventful in all mothers except for one patient who had wound infection following caesarean section and two mothers who had failing lactation.

## CONCLUSION

The positive association of increased maternal age with pre-eclampsia and diabetes mellitus is well established in the study and is similar to that reported in literature. There is also increased incidence of preterm labour, fibroid complicating pregnancy and malpresentations in the elderly gravidae. No significant difference in the rate of labour induction was noted between elderly and young gravidae. Incidence of placenta previa rises with maternal age and

there is no difference in the incidence of abruptio placenta between two study groups. There is rising trend of postpartum haemorrhage among elderly gravidae compared to younger gravidae. The greater difference between older women and controls is identified in the mode of delivery. There is a two-fold increase in the incidence of caesarean section. Of the perinatal outcomes studied, low birth weight babies, foetal distress and neonatal ICU admissions are increased compared to younger gravidae.

## REFERENCES

- [1] Zera C, Fretts RC. Pregnancy and advanced maternal age. *Progr Obstet Gynecol* 2007;17:113-124.
- [2] Larsen U, Hollos M. Women's empowerment and fertility decline among the Pare of Kilimanjaro region, Northern Tanzania. *Soc Sci Med* 2003;57(6):1099-1115.
- [3] Yasin SY, Beydoun SN. Pregnancy outcome at greater 20 weeks' gestation in women in their 40s. A case control study. *J Reprod Med* 1988;33(2):209-213.
- [4] Meenakshi ST, Anjoo A, Vinita D. Advanced maternal age and obstetric outcome. *J Obstet Gynecol India* 2007;57(4):320-323.
- [5] Wong L, Tan AS. The glucose challenge test for screening gestational diabetes in pregnant women with no risk factors. *Singapore Med J* 2001;42(11):517-521.
- [6] Grimes, David A, Gross, Gail K. *Pregnancy Outcomes in Black Women Aged 35 and older obs and gynecology* 1998.
- [7] Pugliese A, Vicedomini D, Arsieri R. Perinatal outcomes of newborn infants of mothers over 40 years old. A case control study. *Minerva Gynecol* 1997;49:81-14.
- [8] Cnattingius S, Forman MR, Berendes HW, et al. Delayed childbearing and risk of adverse perinatal outcome. A population-based study. *JAMA* 1992;268(7):886-890.
- [9] Gilbert WM, Nesbitt TS, Danielsen B. Childbearing beyond age 40: pregnancy outcome in 24,032 cases. *Obstet Gynecol* 1999;93(1):9-14.
- [10] Abu-Heija AT, Jallad MF, Abukteish F. Maternal and perinatal outcome of pregnancies after the age of 45. *J Obstet Gynecol Res* 2000;26(1):27-30.
- [11] Sheiner E, Shoham-Vardi I, Hallak M, et al. Placental abruption in term pregnancies: clinical significance and obstetric risk factors. *J Matern Fetal Neonatal Med* 2003;13(1):45-49.
- [12] Dixit PV, Mehendale MA. Study of pregnancy outcome in elderly gravida. *Int J Reprod Contracept Obstet Gynecol* 2017;6(12):5384-5389.
- [13] Rayl J, Gibson PJ, Hickok DE. A population-based case-control study of risk factors for breech presentation. *Am J Obstet Gynecol* 1996;174(1 Pt 1):28-32.
- [14] Edge V, Laros RK. Pregnancy outcome in nulliparous women aged 35 or older. *Am J Obstet Gynecol* 1993;168(6 Pt 1):1881-1885.

- [15] Seoud MA, Nassar AH, Usta IM, et al. Impact of advanced maternal age on pregnancy outcome. *Am J Perinatol* 2002;19(1):1- 8.
- [16] Godfrey K, Breier B, Cooper C. Constraint of the materno-placental supply of nutrients: causes and consequence. In: O'Brien S, Wheeler T, Barker D. eds. *Fetal programming influences on development and diseases in later life*. London, UK: RCOG Press 1999;283-298.
- [17] Martínez-Frías ML, Bermejo E, Rodríguez-Pinilla E, et al. Maternal and fetal factors related to abnormal amniotic fluid. *J Perinatol* 1999;19(7):514-520.
- [18] Berkowitz GS, Skovron ML, Lapinski RH, et al. Delayed childbearing and the outcome of pregnancy. *N Engl J Med* 1990;322(10):659-664.