

Study of Fetomaternal Outcome in Elderly Pregnancy in Tertiary Care Center, Kakinada

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ABSTRACT

BACKGROUND

Advanced maternal age generally signifies age after 35 years at the time of delivery. Maternal age is an important determinant of the outcome of pregnancy. Elderly women are at a high risk of several complications like abortion, ectopic pregnancy, preterm labour, hypertension, gestational diabetes, malpresentation and instrumental deliveries. Older the women, higher the fetal complications like Down's syndrome, preterm baby, low birth weight (LBW) babies and intrauterine growth restriction (IUGR). The purpose of this study was to assess the fetomaternal outcome in elderly pregnancy at a tertiary care centre.

METHODS

This study was a prospective hospital-based study of 100 elderly pregnant women aged 35 years and above admitted in OBG Department, Government General Hospital, Kakinada, Andhra Pradesh, from June 2020 to May 2021. The labor ward register and case records were used for all elderly gravida women admitted and delivered and details of these patients was recorded in the proforma.

RESULTS

In this study, 68 % were in 35 - 37 years, 32 % were in 38 - 40 years age group. 36 % were primigravida and 64 % were multigravida. 76 % women were housewives and 24 % women were employed. 32 % of women had history of previous abortions. Hypertensive disorders were observed in 42 % of patients, gestational diabetes was observed in 28 % of patients, antepartum haemorrhage was observed in 24 % of patients, IUGR was noted in 20 % of patients and preterm delivery was noted in 10 % of patients. 46 % of patients were delivered by vaginal route and 40 % of patients were delivered by caesarean section. 7.69 % were intrauterine devices (IUDs), 3.85 % had congenital anomalies.

CONCLUSIONS

Elderly women are at a high risk of developing several maternal and fetal complications. Many of these complications can be successfully managed with improved health services, pre-conceptional counselling and frequent antenatal visits.

KEYWORDS

Advanced Maternal Age, Maternal Complication, Caesarean, Preterm Delivery

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BACKGROUND

The health of the mother lays a strong foundation to the health of the baby and to the health of the nation in general. Pregnancy and childbirth are normal physiological processes and outcomes of most of the pregnancies are good. But pregnancy with advanced maternal age is considered and treated as high risk pregnancy. Majority of authors apply the term elderly gravida to a woman over the age of 35 years.¹ Other writers also suggest that from 30 years of age, a gravida becomes elderly. Maternal age is an important determinant of the outcome of pregnancy. The trend of delaying the pregnancy and childbearing is rising globally irrespective of race and economic status. Now a days, women are postponing child bearing for higher educations and career advancement. Increase in rate of divorce and remarriage is also contributing factor for delayed conception.² Easy access to contraception methods has enabled them to achieve better fertility control.³ In developing countries, like in India desire for male child, poor socio-economic status, religious issues, lack of contraceptive knowledge, concept of large family are the common causes of pregnancy with advanced maternal age.⁴

Advanced maternal age beyond 35 years may have more adverse pregnancy outcomes as compared to younger gravida. Elderly women are at higher risk of miscarriage, chromosomal abnormalities, ectopic pregnancy, gestational diabetes, gestational hypertension, preterm delivery, prolonged labour, malpresentation, premature rupture of membranes (PROM), antepartum haemorrhage, multiple pregnancy, increased caesarean section rate, postpartum haemorrhage, low birth weight, IUGR, and intrauterine fetal death. Delaying pregnancy, which is on the rise, may increase the risk of cardiovascular disease in both women and their children. The physiological mechanisms that lead to these effects are not fully understood but may involve inadequate adaptations of the maternal cardiovascular system to pregnancy. Advanced maternal age is associated with reduced fertility as evidenced by decline in ovarian oocyte reserve and increasing number of ovulatory cycles with poor oocyte quality being associated with an increased risk for aneuploidy, chromosomal abnormalities and spontaneous abortions in this group of women who are routinely screened for these problems in some countries.⁵ High expectations of elderly mothers, pre-existing age related disorders and pregnancy specific complications put these antenatal women at greater need of careful surveillance during pregnancy and childbirth. Even though elderly pregnancy is a high-risk pregnancy with maternal and fetal complications, it has been suggested that these complications are manageable and good outcomes are expected. Early booking and more obstetric vigilance shall improve their pregnancy outcomes.

This study was designed to assess the maternal and fetal outcome in elderly pregnancy.

Objectives

1. To study demographic factors associated with elderly pregnancy.

2. To study maternal complications associated with elderly pregnancy aged 35 years and above.
3. To study fetal outcome in elderly pregnancy.

METHODS

This study was hospital based prospective observational study conducted in the Department of Obstetrics and Gynaecology, Government General Hospital, Kakinada, Andhra Pradesh from June 2020 to May 2021.

Pregnant women aged 35 years and older at the time of delivery in this institute (Government General Hospital, Kakinada) were included in this study and they were analyzed for maternal and perinatal outcome. Total study sample size was 100. The labour ward register and case records of all elderly gravida women admitted and delivered in this institute during study period were used and details of these patients were recorded in the proforma.

The variables that were analysed were maternal age, gravid status, parity, occupation, cause for delay in pregnancy, mode of conception, maternal complications, mode of delivery and fetal outcome.

Inclusion Criteria

Women with age more than 35 years old were included in this study after their admission in the institute.

Exclusion Criteria

- Pregnant women who are less than 35 years old.
- Pregnant women having chronic renal failure, chronic liver disease, severe cardiac diseases and severe respiratory diseases.
- Pregnant women not willing for participation in this study.
- Patients coming for medical termination of pregnancy even if they were more than thirty-five years of the age.

Statistical Analysis

Data was entered in MS-excel. Descriptive statistics like simple frequencies and percentages were used.

RESULTS

Age of Patients (Years)	No. of Cases	Percentage
35 - 37	68	68 %
38 - 40	32	32 %
> 40	0	0
Total	100	100 %

Table 1. Distribution of Cases According to Age

In our study, 68 % of patients were in 35 - 37 years age group and 32 % of patients were in age group of 38 - 40 years. Maximum age of patient was 40 years. In our study, 36 % of patients were primigravida and 64 % of patients were multigravidae.

Gravid Status	No. of Cases	Percentage
Primi gravida	36	36 %
Multigravida	64	64 %
Total	100	100 %

Table 2. Distribution of Cases According to Gravid Status

Occupation	No. of Cases	Percentage
Housewife	76	76
Employee	24	24
Total	100	100

Table 3. Distribution of Cases According to Occupation

Majority of patients i.e. 76 % were housewives and 24 % were employed.

Causes	No. of Cases	Percentage
Abortion	32	32
Ectopic pregnancy	18	18
Treatment for infertility	22	22
Late marriage	12	12
Preference of male child	16	16
Total	100	100

Table 4. Distribution of Cases According to Cause for Delay in Pregnancy

In our study, 32 % of patients had history of previous abortions, 22 % were conceived after taking treatment for infertility, 18 % had history of previous ectopic pregnancy, 16 % gave preference for male child and late marriage was in 12 % of cases.

Maternal Complications	No. of Cases	Percentage
Abortions	14	14
Anaemia	16	16
Preeclampsia	42	42
Gestational diabetes mellitus	28	28
IUGR	20	20
Antepartum haemorrhage.	24	24
Multiple pregnancies(twins)	18	18
Malpresentation	12	12
Postpartum haemorrhage.	17	17
Preterm labour	10	10
IUD	8	8

Table 5. Distribution of Cases According to Maternal Complications

Mode of Delivery	No. of Cases	Percentage (%)
Normal vaginal delivery	26	26
Abnormal vaginal delivery	20	20
LSCS	40	40
Abortions	14	14
Total	100	100

Table 6. Distribution of Cases According to Pregnancy Outcome

Fetal Outcome	No. of Babies (Total 104)	Percentage (%)
Uneventful outcome	40	38.46
Congenital anomalies	4	3.85
IUGR	20	19.23
LBW	24	23.08
IUD	8	7.69
Macrosomic babies	8	7.69

Table 7. Distribution of Cases According to Perinatal Outcome

In our study, some women had developed more than one maternal complication. 42 % had preeclampsia, 28 % of them had gestational diabetes, 20 % were IUGR, 24 % were antepartum haemorrhage, 18 % had multiple pregnancies, 17 % were observed with postpartum haemorrhage, 16 % had anaemia, another 10 % with preterm labour, 12 % had

malpresentations. In our study 26 % of patients had normal vaginal delivery, 20 % had abnormal vaginal delivery and LSCS was done in 40 % of patients.

In this study, 38.46 % of babies were healthy, 23.08 % had low birth weight (LBW), 19.23 % were IUGR, 7.69 % were IUD, 7.69 % were macrosomic babies, 3.85 % had congenital anomalies.

DISCUSSION

This study included elderly pregnant women of age > 35 years. 100 elderly pregnant women admitted during one-year period were assessed to determine the effect of age on maternal and fetal outcome. Fertility of a healthy women reaches peak at 23 years. After that fertility will decline gradually. The causative factors for decline in women's fertility with age are multiple including physiological and acquired. With advancing age, the incidence of structural pathologies like endometriosis, uterine fibroids, endometrial polyps and tubal diseases will increase. The ovarian reserve also declines with advanced women's age. All these factors contribute to decline in fertility of an elderly women. So that by the age of 40, the chances of becoming pregnant will be significantly reduced. The outcomes from pregnancy in AMA (advanced maternal age) may have a negative impact on women's health as they age because of both the changes from the pregnancy itself and the increased risk of pregnancy-related complications.

Normal physiological, haematological, and cardiovascular adaptations that occur during normal pregnancy were inadequate in pregnant women with advanced maternal age. Hence, these elderly women were more prone to pregnancy related complications.

In some animal studies (in aged dams), there was altered endothelial function and reduced cardiovascular compliance. This was due to reduced bioavailability of nitric oxide. These changes finally resulted in vasoconstriction of both systemic and uterine vasculature. It was also found that with advanced age, decidual reaction was impaired and microvilli architecture was also altered. These changes finally land up in impaired trophoblastic invasion into underlying decidua. Because of vasoconstriction in uterine circulation and alterations in microvilli architecture, placenta becomes ischemic. This ischemic placenta will in turn produce oxidative stress resulting in accelerated syncytiotrophoblastic apoptosis, and altered immunological responses. These pathological and abnormal physiological responses increase pregnancy complications.

In the present study, 68 % of pregnant women were in age group of 35 - 37 years, 32 % of pregnant women were in age group of 38 - 40 years. Compared with B. Luke and M. B. Brown study, 59 % were in age group of 30 - 34 years, 31 % were in 35 - 39 years, 7.8 % were in 40 - 44 years and 0.4 % were > 45 years.⁶ In this study, majority of patients (64 %) were multigravida and 36 % were primigravidae. Chibber R study group also found a greater number of multigravida (82 %).⁷ The women tend to become pregnant at advanced age due to lack of knowledge of availability of effective contraception, infertility, previous

abortions and ectopic pregnancies, desire for male child and late marriages. In present study, 76 % of women were housewives and 24 % were employed. Mare I. W and lakew. Z, found out in their studies that 63 % were housewives and 26 % were employed.⁸ In this study, 22 % of patients had history of infertility and required assisted reproductive technology for conception, Nozomi M and Haghghi L et al. in their study found out that 25.5 % of patients had history of infertility.⁹

Complications during Pregnancy

As the age advances, the elderly women are more susceptible to higher number of complications that can affect health of both mother and fetus. Because of these high incidences of fetomaternal complications, these elderly women may have high number of ante-partum hospitalizations when compared to younger pregnant women. Of all maternal complications in elderly pregnant women, two are most common - hypertension (pre-existing or pregnancy related) and diabetes (overt and gestational).

Incidence of hypertensive disorders of pregnancy was higher in this study that is 42 %. Microvascular endothelial dysfunction which is the basic pathology in preeclampsia, accelerates with advancing age. KE Fitzpatrick et al. observed rate of hypertension of 15 %.¹⁰ and Gaikwad SS et al. observed rate of diabetes mellitus of 26.3 %.¹¹ Links between preeclampsia and the risk of future development of cardiovascular disease require follow-up surveillance.

In present study, incidence of gestational diabetes was 28 %. In Marzich Nojomi et al. study, incidence of diabetes was 3.7 %. Diabetes during pregnancy may result in several maternal and fetal complications like preeclampsia, polyhydramnios, PROM, congenital anomalies, abortions, fetal macrosomia, sudden intrauterine fetal device, stillbirth and birth asphyxia.

In present study, anaemia was noted in 16 % of women, Gaikwad SS et al. observed anaemia at the rate of 10.5 % and Moses et al. found incidence of anaemia at the rate of 19 %.¹² This incidence of anaemia was mainly due to failure to take prescribed haematinics, food taboos and low socio-economic status.

In present study, 18 % of women were with multiple pregnancy. Richard Pryor, Pomeco, Leslie hander et al. found rate of multiple pregnancy of 48 %.¹³ The most important cause for multiple pregnancy in elderly women is ovulation induction and pregnancy with assisted reproductive technologies.

In present study, the rate of preterm delivery was 10 % whereas the rate of preterm delivery in Gaikwad SS et al. study was 49 % and Yariv y, Melamed N, Tenenbaum-Gavish K et al. found rate of 54 % in 30 - 39 years age group, 42 % in 40 - 45 years and 15 % > 45 years age group.¹⁴ In present study, incidence of malpresentation was 12 % whereas Ezechi OC et al. found that the incidence was 9.1 %.¹⁵ and Gaikwad SS et al. observed rate of 10.5 %. In present study, abortion rate was found to be 14 %. In study conducted by Ramchandran N et al. rate was 9.5 %. In previous studies reporting the association of the maternal age with abortion, majority of foetal losses occurred in 1st

trimester and these could be attributed to aneuploidies. In present study, incidence of postpartum haemorrhage (PPH) was 17 % whereas in Yun wang and Tom tanbo et al. study the rate was 18.5 %.¹⁶

Advanced maternal age is linked to a higher prevalence of placenta previa and placental abruption, both of which cause bleeding in late pregnancy. In the present study, incidence of ante-partum haemorrhage is about 24 %. Placental abruption is a rare but serious complication in the second half of pregnancy and life-threatening for both the mother and the fetus. Death is inevitable if a complete or near-placental separation occurs, unless an immediate caesarean section is performed.

In present study, patients delivered vaginally are 46 %, in which rate of normal vaginal delivery was 26 % and rate of abnormal vaginal delivery was 20 %. Incidence of caesarean section was 40 % in present study whereas in Rajput N et al. study who found the rate of caesarean section of 35.41 %¹⁷ and in Giri et al. it was 30 %.¹⁸

No maternal deaths occurred in present study. Maternal mortality is higher in women aged 35 years and older but improved medical care may ameliorate this risk. During the last three decades, significant changes took place in medicine. Better surgical techniques, availability of blood bank services and antibiotics, improvement in anaesthesia techniques are some examples.

Empowering providers and women of AMA is critical to facilitating clinical decision making. Education on AMA-associated risks will help women make more informed decisions on the timing of childbearing and are essential to patient-centred care. Information should be delivered in a culturally competent way that also takes health literacy into account. This means that providers should minimize or eliminate their biases and be educated about the influences of religion, culture, beliefs, and behaviours, including pregnancy risk perception by women of AMA.

Perinatal Outcome

Perinatal outcome was uneventful in 38.46 % and incidence of low birth weight was 23.08 % in the present study whereas in Rajput N et al. study it was found as 75.34 % and 13.19 % respectively. Chromosomal anomalies were suspected in some cases but facilities of amniocentesis and cytogenetics were not available in our institute during this study period. Early booking, close supervision in the antenatal and intrapartum period, appropriately timed obstetric intervention and the implementation of active management of labour may have contributed to good fetal outcome.¹⁹

Management

The magnitude of fetomaternal complications in elderly pregnancy can be decreased with appropriate measures taken before pregnancy and during antenatal and intra partum period. These include-

1. Preconceptional Counselling

- Preconceptual phase is the time to identify any risk factor that could potentially affect the perinatal outcome adversely.

- Objective is to ensure that a woman enters pregnancy with an optimal state of health which would be safe both for herself and the fetus.
- Evaluate detailed obstetric, medical, family and personal history in elderly women planning pregnancy. Risk factors are assessed by laboratory tests, if required.
- Pre-existing chronic diseases (hypertension, diabetes etc.) are stabilized in an optimal state by intervention.

2. Prenatal Diagnosis

- As the age advances, pregnancy is associated with high incidence of chromosomal abnormalities like trisomy 21 (downs syndrome), trisomy 18, 13.
- Procedures for early detection of fetal genetic, chromosomal, and structural abnormalities include-triple test (MSAFP, unconjugated estriol (uE3) and hCG), quadruple test: (MSAFP, uE3, hCG, inhibin A)
- NT scan should be done for chromosomal abnormalities.
- TIFFA scan should be done for detection of fetal anomalies.
- Chorionic villus biopsy and or amniocentesis may be sometimes required to detect chromosomal abnormalities.

3. Antenatal Management

- Early booking and close antenatal fetal surveillance with frequent antenatal check-ups and serial obstetric scans with Doppler is needed.
- Physician consultation and supervision is also important in case of elderly women with pre-existing medical problems and strict control of medical disorders is the prime requisite to reduce fetomaternal complications.

4. Intrapartum Management

- All elderly pregnant women should be delivered in institute/hospital
- Elderly women with previous existing medical disorders should be under supervision of team consisting obstetrician, physician and neonatologist.
- Continuous electronic fetal monitoring is necessary.
- Progress of labor should be monitored with partogram.

5. Postpartum Management

- Elderly gravida after delivery should be monitored properly to avoid postpartum complications.
- They should be counselled for contraceptive choices.

CONCLUSIONS

Elderly women aged 35 years and above are at a high risk of developing many maternal and fetal complications. Consistent with other studies, hypertension was the most common disorder complicating pregnancy at age 35 and above. Larger studies are needed to establish the exact magnitude of these associations and to show any significant difference in antepartum obstetric problems and fetal and neonatal outcome measures.

Management will largely depend on attempts at improving perinatal outcome without compromise to health and well-being of the mother. Improvement of pregnancy outcome in elderly should be anticipated with the availability of preconceptional counselling, prenatal screening and diagnosis, more frequent antenatal visits with antepartum fetal surveillance with serial ultrasound and Doppler, targeted anomaly scan. Hospital delivery preferably in a tertiary centre with good neonatal care facilities, judicious monitoring of labour is needed to ensure safe motherhood and a healthy foetus.

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