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Maternal Complications and Foetal Outcomes in Elderly Primigravida

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ABSTRACT

Background: Elderly primigravida is a common problem in present days, due to a rise in educational levels, efficient birth control measures and a larger number of women in the workforce. Low birth weight, antepartum and intrapartum foetal loss, neonatal mortality, and several pregnancy and labour issues requiring surgical delivery are all associated with advanced maternal age.

Methods: An observational study was undertaken in the Department of Obstetrics and Gynecology, S.C.B Medical College and Hospital, Cuttack from March 2021 to February 2022 on elderly primigravida. All the sociodemographic details were obtained from the study subjects. The intranatal, antenatal, postnatal and neonatal parameters were observed.

Results: A total of 100 cases were selected for the study. The majority were literate and from urban areas, belonging to 31-35 years age group and middle socioeconomic status. Major complications noticed were anemia, fibroid, and hypothyroidism with the occurrence of hypertensive disorders of pregnancy, felt growth restriction, and antepartum hemorrhage. Major labor complications were fetal distress, premature rupture of membrane, and cephalopelvic disproportion. The majority of patients delivered low birth weight babies with low APGAR scores (<7 at 5 min) and increased incidence of neonatal morbidities. Early neonatal death and stillbirth were high showing an increased perinatal mortality.

Conclusion: This study concluded that an elderly primigravida is a high-risk group that encounters complications during pregnancy and labor. The newborns are also low birth weight with a high risk of neonatal morbidities. Pre-conceptional counselling, supervision during antenatal and intrapartum periods and scheduled obstetric intervention are necessary for optimum outcomes.

Key-words: APGAR score, Cephalopelvic Disproportion, Chromosomal Abnormality, Elderly Primigravida, Neonatal Morbidity, Preterm Labor

INTRODUCTION

Pregnancy is usually a normal physiological process, however, there are risks involved during pregnancy that are harmful to both the mother and the newborn [1]. Developing nations are showing a tendency towards later childbirth, and in the current situation, it has been discovered that women, who are employed are infertile, ignorant, and uninterested in family planning options. They encounter numerous issues and risks when they eventually decide to have a child [2,3]. Women having their pregnancy at a late age are called elderly primigravida [4].

Waters & Wagner coined the term “Elderly primigravida” as one of the obstetrical risk factors in 1950. The criteria for the elderly primigravida have been at variance over the years from time to time and from centre to centre. However, the Council of the International Federation of Obstetrics and Gynecology (July 1958), recommended elderly primigravida as a woman with first pregnancy at the age of 35 years or more [5]. Due to the increasing prevalence of late motherhood in today's educated and

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career-focused culture, the topic of obstetrics concerning elderly primigravida is quite important [6]. The shift in childbirth patterns among older women is said to have been caused by higher educational and career goals, late marriages, financial problems, infertility, recent advancements in reproduction technologies, and the adoption of birth control measures [7].

Poor oocyte quality in elderly primigravida is found to be associated with an increased risk of reduced fertility thereby resulting in aneuploidy, chromosomal abnormalities, and spontaneous abortions. Some countries recommend routine screening for these genetic abnormalities [8]. Several complications are associated with this group such as antenatal complications (ectopic pregnancy, gestational/overt diabetes mellitus, preeclampsia and eclampsia, placenta previa, uterine fibroid), intra-natal complication (premature rupture of membrane, preterm labor, fetal distress, retained placenta), fetal and neonatal complication (prematurity, chromosomal anomalies, congenital anomalies, fetal growth restriction, low birth weight), and postpartum complications (anemia, postpartum hemorrhage, thrombotic complications, failed lactation) [9-12].

This high-risk group requires early booking, close supervision in the antenatal and intrapartum period, and appropriately timed obstetric intervention for an optimum outcome leading to a healthy mother and healthy baby [13]. The present study was undertaken to assess pregnancy complications in elderly primigravida and poor outcomes in their newborns. The increased risk associated with advancing maternal age was also examined.

MATERIALS AND METHODS

Research Design- An observational study was conducted on the elderly primigravida patients attending the outpatient (OPD) and labor room of the Department of Obstetrics and Gynecology (O&G), S.C.B Medical College, Cuttack, India during a period of one year from March 2021 to February 2022. All cases were selected according to inclusion and exclusion criteria to study the feto-maternal outcome in elderly primigravida.

Inclusion criteria

- All primigravida pregnancies have an age ≥30 years.
- All booked and unbooked cases are willing for hospital delivery at S.C.B Medical College and the hospital after proper consent.

Exclusion criteria

- All pregnant women who were multigravida and or aged <30 years.
- Patients having major cardiac, respiratory, renal disease, Type II diabetes, epilepsy, tuberculosis (TB), and chronic hypertension.
- Women who did not give informed written consent.
- Patients who lost to follow-up.

Research Methodology- Information regarding the study was given to all elderly primigravida admitted to the OPD and labor room and informed consent was obtained. Detailed history including demographics (name, age, residence, educational qualification, socioeconomic status), and obstetrical profile (gestational age, infertility history, infertility treatment) was noted.

Clinical examination including general and obstetric assessment was undertaken and the patients were followed up till discharge from the hospital. Etiology, mode of delivery, mode of onset of labor, obstetric complication, and maternal outcomes including complications such as postpartum hemorrhage, retained placenta, abruption placenta, and intrauterine death were analyzed. In newborn birth weight, APGAR score, neonatal intensive care unit (NICU) admission, neonatal death, stillbirth, and neonatal morbidities such as fetal distress, intrauterine growth restriction (IUGR), prematurity, neonatal jaundice, neonatal sepsis, birth asphyxia, birth trauma, and meconium aspiration syndrome were noted.

Statistical Analysis- Microsoft Excel sheet v2021 was used for statistical analysis and was imported to SPSS version 21.0 (IBM, IL, Chicago). The chi-square test was used to compare qualitative data, and p-value<0.05 was considered statistically significant.

Ethical Consideration- The study was approved by the institutional ethics committee bearing IEC application number 895 on date 03 August 2021.

RESULTS

The total number of deliveries in the hospital was 9011. Among them, 100 patients were elderly primigravida

showing an incidence of 1.10%. The majority (70%) belonged to the 31-35 years age group, 20% of cases belonged to the 30-year-old age group and 10 cases (10%) were found in the age range of 36-40 years. The mean age of the mother was found to be 32.56±2.24 years.

The sociodemographic characteristics of the studied subjects were analysed and tabulated (Table 1). About 69% of cases belonged to the middle class followed by 21% who belonged to the lower class. Most patients in the study group were from urban areas (66%) and were literate (79%). The educational qualification of the subjects revealed that 44% of patients attended college, 12% attended primary school, and 23% attended secondary school.

Table 1: Sociodemographic profile of studied subjects.

Sociodemographic parameter	No of patients	Percentage (%)
Socio-economic status		
Upper	10	10
Middle	69	69
Lower	21	21
Residence		
Urban	66	66
Rural	34	34
Education		
Illiterate	21	21
Primary school	12	12
Secondary school	23	23
College	44	44

On analysing the treatment history among the infertile group in elderly primigravida, the majority 42 (73.7%) of the patients had received treatment out of 57 infertile patients. Screening of chromosomal abnormality was done in 14 women using NT Scan and Dual marker for aneuploidy. Among them, 13 (92.9%) patients showed results of low risk for chromosomal abnormality.

About 26% of cases out of 100 elderly primigravida had preterm delivery while 12% of cases had post-term pregnancy. The associated complications such as anaemia (27%), fibroid (3%), hypothyroidism (7%), asthma (1%), and hyperemesis (3%) were also assessed. However, in studying obstetric complications, it was found that 56% of cases in the study were uncomplicated. A relative increase in the incidence of obstetrical complications was found in the study group especially hypertensive disorder of pregnancy which alone contributed to 27% of cases followed by fetal growth restriction (FGR; 11% of cases) and oligohydraminous in 5% of cases (Table 2).

Table 2: Obstetric complications in elderly primigravida.

Obstetric complication (n=100)	No of patients	Percentage (%)
Uncomplicated	56	56
Gestational hypertension	6	6
Pre-eclampsia	14	14
Eclampsia	2	2
Placenta previa	1	1
Abruptio placentae	1	1
FGR	9	9
Polyhydraminous, GDM	1	1
Oligo hydraminous	5	5
Pre-eclampsia, Abruptio placentae	1	1
Pre-eclampsia, FGR	2	2
Pre-eclampsia, GDM	1	1
Pre-eclampsia, placenta previa	1	1

GDM gestational diabetes mellitus; FGR fetal growth restriction

Many cases (64.6%) had spontaneous onset of labor, whereas 35.4% of cases of elderly primigravida were induced labor. No labor-associated complications were reported in 42 cases of the study group. Preterm labor (22%), fetal distress (14%), pre-labor rupture of membrane (7%), and Cephalo pelvic disproportion (CPD, 7%) were among the common complications seen in the study group (Table 3). The incidence of postpartum complications was 18%. Among them, common complications were fever (11%), wound infection (7%), and posterior reversible encephalopathy syndrome (PRES, 1%).

Table 3: Complications reported during labor in the study group.

Labor complication (n=100)	No of patients	Percentage (%)
Uncomplicated	42	42
CPD	7	7
Preterm labor	22	22

Fetal distress	14	14
Retained Placenta	3	3
Postpartum hemorrhage	4	4
PROM	7	7
Chorioamnionitis	1	1

CPD Cephalo pelvic disproportion; PROM premature rupture of membrane

Many babies in the study group (62%) had a birth weight >2.5 kg. However, 38% of patients delivered low birth weight (LBW <2.5 kg) babies. Amongst the 96 live-born babies, 36 babies (36%) had APGAR scores <7 at 1 min and 11 babies (11%) had APGAR scores <7 at 5 min. The incidence of neonatal morbidities among live-born babies was 35%. Common neonatal morbidities observed were birth asphyxia (12%), jaundice (9%), and meconium aspiration syndrome (6%). The congenital malformation seen in the study group was a cleft palate (Table 4). Still, birth rate and early neonatal death were high showing an increased perinatal mortality.

Table 4: Neonatal morbidity among the babies of elderly primigravida.

Neonatal morbidity (n= 35)	No of patients	Percentage (%)
Uncomplicated	65	65
Congenital anomaly	1	1
Birth asphyxia	12	12
Birth trauma	1	1
Jaundice	9	9
Neonatal sepsis	3	3
Meconium aspiration	6	6
Hypoglycemia	3	3

DISCUSSION

In the present study, a majority (70%) belonged to 31-35 years age group and 20% of cases belonged to 30 years age group. While Achanna & Monga [14] observed 88.13% of primigravida aged 35-39 years and Shehadeh [5] found that 96% of primigravida were in the age group 35-40 years.

The majority of cases (69%) in the present study belong to middle socioeconomic status which was consistent with a study by Pegu *et al.*[15] showing a figure of 62.8% in social class. Also, 79% of elderly primigravida were literate and 44% had attended college. This result was consistent with studies by Mose *et al.* [8] & Thatal *et al.* [2] showing 26% and 32% of elderly primigravida having higher education, respectively. The possible explanation for these results is that upper- and middle-class women being more educated, delay childbearing because they marry at a later age or they prolong the marriage conception interval till their career goals are attained.

Anemia was one of the associated complications observed in the study group due to poor socioeconomic status, lack of health concerns and inadequate antenatal care facilities in developing countries. An increased incidence of fibroid (3%) was reported in the study group, which can be explained because of advanced age and associated infertility. These results were consistent with the study by Shehadeh [5] (2.9%) and Thatal [2] (3.61%). Increased incidence of hypertensive disorders of pregnancy in elderly primigravida had been a consistent finding in the literature. The result in the present study was consistence with other studies [16,17].

The majority of cases in the study group (64.6%) had spontaneous onset of labor Pegu *et al*. [15] and Joseph *et al.* [18] observed induction rates of 43.3% and 36.7%, respectively which correlated with the findings of the present study.

Major labor complications observed in elderly primigravida in our series were fetal distress, PROM, preterm labor, CPD and retained placenta. Pradhan *et al*. [19], Pandit and Kale [16] reported similar results. This could be attributed to the advancing age of elderly primigravida.

The incidence of LBW in the present study was 38%. This increased incidence of LBW babies among elderly primigravida women can be attributed to antepartum complications like hypertensive disorders of pregnancy, fetal growth retardation and preterm deliveries. Our study result was consistent with other studies by Achanna and Monga [14] and Al Turki *et al*. [20] which observed an incidence of 22% and 25.7%, respectively of LBW babies in elderly primigravida patients. The incidence of neonatal morbidities was quite high in the study group including birth asphyxia (12%), jaundice (9%), meconium aspiration syndrome (6%), neonatal sepsis (3%), congenital malformations (1%), and birth trauma (1%). These results were comparable to the findings of Ojule *et al*. [9], Jirattigalachote *et al.* [21], and Al Turki *et al.* [20]. The improvement in the facilities of neonatal care in the hospital can be an important

contributory factor to the survival of premature and LBW babies.

CONCLUSIONS

The present study concluded that elderly primigravida is more likely to encounter complications during pregnancy and labor. The occurrence of hypertensive disorder of pregnancy is more common in this group of women. Major neonatal morbidities were birth asphyxia and jaundice. Special care such as pre-conceptional counselling, early booking, close supervision in the antenatal and intrapartum period and appropriately timed obstetric intervention is required in this high-risk group of women for an optimum outcome leading to a healthy mother newborn.

Early booking, close supervision in the antenatal and intrapartum period, appropriately timed obstetric intervention and advocating active management of labor can contribute to good fetal outcomes.

CONTRIBUTION OF AUTHORS

Research concept- Ipsita Mohapatra
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