

Pregnancy Outcome Among Primigravidae Aged 35 Years and Above: A Comparative Study

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ABSTRACT:

Introduction: Maternal age is an important determinant of pregnancy outcome. Women aged 35 years or more at their first pregnancy are considered high risk as they are associated with increased adverse maternal and perinatal outcomes. **Methods:** A retrospective, comparative study was carried out over a period of two years in a tertiary center. Each elderly primigravida was matched with two primigravid women aged 20-34 years who delivered during the same period. Secondary data on obstetric outcomes (diabetes, oligohydramnios, polyhydramnios, hypothyroidism), postpartum complications (post-partum hemorrhage, post-partum eclampsia) and perinatal outcome (intra-uterine growth restriction, prematurity, congenital anomalies, and neonatal death) of 82 elderly primigravidae (study group) was compared with 164 younger primigravida (control group) delivered during the period of study. The Chi Square test and Fisher's Exact test were used for statistical analysis and p value of <0.05 was taken as level of significance. **Results:** During the study period, there were 15,012 deliveries and 82 of these were elderly primigravidae giving an incidence of 0.55%. The mean age of the elderly primigravidae was 36.8±2.16 years. The study group had more antepartum complications with preterm labor, diabetes in pregnancy, hypertensive disorders in pregnancy, multiple pregnancy and polyhydramnios (p<0.05). Seventy-one elderly primigravidae were delivered by caesarean section, the commonest indication being maternal request. The study group had higher incidence of post-partum hemorrhage but no perinatal mortality of significant proportion. **Conclusion:** Maternal age at the first pregnancy influences pregnancy and neonatal outcome. Hence, elderly primigravidae should be considered as high risk and followed up accordingly.

Keywords: Elderly primigravidae, Maternal age, Pregnancy outcome

INTRODUCTION:

Maternal age and parity have been considered among the key determinants in obstetric performance and pregnancy outcomes. The extremes of reproductive life and parity have been widely associated with increased adverse obstetric outcomes. [1] In 1958, the council of "International Federation

of Obstetrics and Gynecology" adopted age of 35 years or more for elderly primigravida.[2] Elderly women are at a higher risk of several complications including malpresentations, malpositions, induction of labour, hypertensive disorders of pregnancy (HDP), diabetes mellitus, antepartum hemorrhage (APH), prolonged labour, instrumental deliveries, increased caesarean section rate and postpartum hemorrhage (PPH).[3] With increase in maternal age oocyte quality gets poorer which causes risk of chromosomal anomaly, aneuploidy and spontaneous abortion.[2] In addition, perinatal complications are reported to be higher in this patient population.[4]

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In recent years, many women defer marriage and child bearing till they are in their late thirties in order to seek education and career. This trend has delayed the number of women undergoing their first pregnancy before 35 years.[4] Hence, this study aimed to evaluate the obstetric and perinatal outcomes among this subset of obstetric population.

METHODS:

This was a retrospective, comparative study carried out in the Department of Obstetrics and Gynecology, Patan Academy of Health Sciences, Patan, Nepal. The data collection was done from 25th November 2019 to 25th December 2019 from the medical record section during which the data of women delivered from 1st January 2017 till 31st December 2018 were collected. The ethical clearance was taken from the Institutional Review Committee prior to commencement of the study.

The labour ward register was revisited and all the primigravidae aged 35 years and more who had delivered during the study period were identified. Those known to have diagnosed heart disease and bronchial asthma were excluded. For each elderly primigravida taken as a case, the next two primigravidae aged 20-34 years that delivered were included as controls. The case to control ratio was taken as 1:2. The case files were retrieved from the records department and studied retrospectively. All the relevant demographic information was recorded in a preformed performa. The clinical information recorded were age, type of pregnancy (single/multiple), obstetric outcome (HDP, diabetes, APH, oligohydramnios, polyhydramnios,

hypothyroidism), postpartum complications (PPH, postpartum eclampsia) and perinatal outcome (intra-uterine growth restriction, prematurity, congenital anomalies, and neonatal death).

The data thus collected were entered to and analyzed with Statistical Package for Social Sciences (SPSS™) software version 20. Descriptive statistics like mean and standard deviation were used to describe quantitative data and, frequencies with percentages were used for qualitative data. Independent 't' test, Chi-Square test and Fisher's Exact test were used for statistical analysis as applicable. A p value of <0.05 was taken as level of significance.

RESULTS:

There were a total of 15,012 deliveries out of which 82 (0.55%) were elderly primigravidae. As controls, 164 primigravidae aged 20-34 years were taken. The mean age in the case group was 36.8±2.15years and in the control group, 25.61±3.25 years. The highest age in the case group was 46 years. Nineteen women had infertility treatment in the case group among which 11 had undergone in-vitro fertilization (IVF) and eight had intrauterine insemination (IUI). In the control group, only two women had infertility treatment with IUI. There were two triplets and three twin pregnancies among the study group which were the result of IVF.

Table 1 shows that the incidence of preterm labor, diabetes in pregnancy, HDP, multiple pregnancy and polyhydramnios were statistically significantly higher in the study group than in the

Table 1. Comparison of complications in the antenatal period.

Type of complications	Study group (N=82)	Control group (N=164)	Statistics
Preterm Labor	12 (14.63%)	10 (6.09%)	$X^2(1,246)=4.892, p=0.027$
Diabetes in pregnancy	10 (12.20%)	6 (3.65%)	$X^2(1, 246)=6.551, p=0.010$
HDP	22 (26.82%)	8 (4.87%)	$X^2(1,246)=24.60, p<0.001$
IUGR#	9 (10.97%)	14 (8.53%)	$X^2(1, 246)=0.384, p=0.536$
IUFD#	1 (1.21%)	0 (0%)	$p = 0.333^*$
Hypothyroidism	11 (13.41%)	12 (7.31%)	$X^2(1,246)=2.398, p = 0.121$
APH	1 (1.21%)	1 (0.60%)	$p = 0.556^*$
Oligohydramnios	11 (13.41%)	14 (8.53%)	$X^2(1,246)=1.425, p=0.233$
Polyhydramnios	4 (4.87%)	0 (0%)	$p = 0.012^*$
Multiple pregnancy	5 (6.09%)	2 (1.22%)	$p = 0.043^*$

*Fischer Exact Test, #IUGR: Intrauterine growth restriction, #IUFD: Intrauterine fetal death

Table 2. Comparison of mode of delivery between the groups.

Mode of delivery		Study group (N=82)	Control group (N=164)	Statistics
Vaginal		10 (12.20%)	102 (62.20%)	X ² (1, 246)=54.899, p<0.001 p=1.00*
Instrumental		1 (1.21%)	3 (1.83%)	
LSCS#	Elective	29 (35.37%)	7 (4.27%)	X ² (1, 246) = 54.899, p<0.001
	Emergency	42 (51.21%)	52 (31.70%)	

*Fischer Exact Test, #LSCS: Lower segment Caesarean Section

Table 3. Comparison of postpartum complications between the groups.

Complications	Study group (N=82)	Control group (N=164)	Statistics
PPH	6 (7.31%)	2 (1.22%)	X ² (1, 246) = 6.460, p=0.011
Postpartum eclampsia	1 (1.21%)	0 (0%)	p=0.333*

*Fischer Exact Test

Table 4. Comparison of neonatal outcome in the study and control groups.

Complications	Study group (N=82)	Control group (N=164)	Statistics
Low birth weight (<2.5kg)	15 (18.30%)	16 (9.75%)	X ² (1, 246) = 3.617, p=0.057
Congenital malformation	1 (1.21%)	0 (0%)	p=0.333*
Neonatal death	2 (2.44%)	1 (0.60%)	p=0.258*

*Fischer Exact Test

control group (p<0.05).

Table 2 compares the mode of delivery between the study and control groups. Cesarean section was statistically significantly higher in the study group (p<0.001).

Table 3 shows that the study group had statistically significant (p<0.05) proportion of PPH. The above table showed no statistically significant differences in the neonatal outcome in the study group on comparison to the control group.

There were two neonatal deaths in the study group. One was due to prematurity and multiple congenital anomalies whereas the other one was due to extreme prematurity (25 weeks of gestation). One neonatal death in the control group was also due to prematurity.

DISCUSSION:

The prevalence of primigravidae aged 35 years or above in this study was 0.55% which is almost similar to 0.42% and 0.69% reported by

Bako B et al.[4] and Anozie OB et al.[5] respectively in Nigeria. However the prevalence were higher in studies conducted by Ikeanyi EM al.[1] and Ojule JD et al.[6] accounting for 1.44% and 1.6% respectively. The lower prevalence in this study is probably because in developing country like ours, women get married at an earlier age and start family before they are 35 years.

The current study showed an increased risk of HDP, diabetes in pregnancy, multiple pregnancy and polyhydramnios among the elderly primigravidae during the antenatal period. These findings are similar to those of Anozie OB et al.[5] which reported high incidence of HDP and diabetes mellitus among elderly primigravidae.

Similarly, the preterm delivery rate was significantly higher in the elderly primigravidae compared to the younger primigravidae. Ojule JD et al.[6] and Anozie OB et al.[5] have also reported increased rate of preterm delivery. This may be due to early induction in the study group because of associated antenatal complications requiring early delivery. However,

Pegu B et al. [2] and Bako B et al. [4] have reported that preterm delivery was not statistically significant in their study groups. This could be due to the small sample size in both the study groups.

We also found a significant increase in the rate of caesarean delivery ($p < 0.001$) in elderly primigravidae women when compared to the women aged 20-34 years. This is in agreement with the findings of other researchers.[1,2,4,5,8] Out of 82 deliveries in the study group 71 were by caesarean section and the commonest indication was advanced maternal age with treated subfertility and maternal request. The reason for this may be because of anxiety and stress associated with long period of infertility. However, the difference in instrumental delivery was not statistically significant.

Postpartum hemorrhage was more in the study group which was statistically significant ($p < 0.05$). However in the study by Pegu B et al.[2] PPH cases in the study group was not statistically significant. Similarly other studies have shown increased incidence of PPH but not significant statistically.[1,4,5,9]

The neonatal outcome among the elderly primigravida is generally controversial, some reported increase in neonatal death[5], while others did not.[1,2,4,7]. Our study revealed no statistically significant difference in terms of low birth weight, neonatal death and congenital malformation.

The limitations of this study include its retrospective nature and its ability to assess the outcomes of only viable pregnancies. Since the study population included only women who gave birth at Patan hospital, the results may not be generalized.

CONCLUSION:

Maternal complications were more during pregnancy in advanced maternal age requiring increased need for early delivery and caesarean section. Therefore, advanced maternal age is definitely a high risk group with adverse obstetric and perinatal outcomes. However, these problems can be overcome and one can expect a good pregnancy outcome.

Conflict of interest: Authors declare that no competing interest exists.

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