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Original Article

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Pregnancy Outcome among Elderly Primigravidae: A Five-year Review at Abakaliki, Ebonyi State, Nigeria

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ABSTRACT

Introduction: Maternal age is an important determinant of pregnancy outcome and women aged 35 years or more at their first pregnancy are considered high risk pregnancy due to increased risk of feto-maternal morbidity and mortality.

Aim: To evaluate the outcome of pregnancy in primigravid women who were aged 35 years and above.

Materials and Methods: A five-year retrospective study among elderly primigravidae was conducted. The study assessed 78 booked primigravidae aged 35 years or more who delivered at the Federal Teaching Hospital Abakaliki from 1st January 2012 to 31st December 2016. Each elderly primigravida was matched with two primigravid women aged 20-25 years who delivered during the same period. Postnatal visit was also assessed.

Results: During the study period, there were 11,329 deliveries and 78 of these were elderly primigravidae giving an incidence of 0.69% or 1:145 deliveries. The mean age of the elderly primigravidae was 36.28±1.20 years. The study group had more antepartum complications with anaemia, antepartum haemorrhage, hypertensive disorders of pregnancies, diabetes mellitus and preterm labour ($p<0.05$). Intrapartum complications such as poor progress of labour and cephalo-pelvic disproportion were also significantly higher. Almost half of the study group were delivered by caesarean section, the commonest indication being maternal request based on prolonged infertility (16.67%). The study group had higher incidence of preterm delivery and perinatal mortality of significant proportion. However, they were more likely to come for the 6th week postnatal visit 71.2% versus 32.1%.

Conclusion: The problems of elderly primigravidae are still germane and relevant in present day obstetrics. Efforts should be intensified towards identifying this high-risk group with a view to take proactive measures aimed at minimising pregnancy related complications so as to achieve the best outcome for them and their babies.

Keywords: Advanced maternal age, Maternal morbidity, Parturient, Perinatal complications, Reproductive outcome

INTRODUCTION

The elderly primigravida is a woman who goes into pregnancy for the first time at the age of 35 years or more [1,2]. Traditionally, pregnant women of 35 years or more are considered high risk due to increased maternal and perinatal morbidity and mortality associated with such pregnancies [2,3]. In recent times, there has been an increasing trend among women to pursue higher education, seek good jobs and desire for career advancement before settling down for marriage and child bearing [1-4]. Consequently, women inadvertently postpone childbearing and ultimately get advanced in age by their first pregnancy.

In Nigeria, the advent of democratic rule and economic development has resulted in improvement in socio-economic condition of the populace and as such more women are getting good education, better employment and greater awareness of healthcare services that will improve their quality of life [5]. Therefore, it may not be surprising to find that more and more women now postpone child bearing to a later age. Available literatures suggest that 0.5-10% of pregnancies occur at the age of 35 years and above, depending on the locality and population in question [6-11]. This trend of delaying childbirth has been reported to be more prevalent in developed countries of the world, while studies in developing countries such as Nigeria has reported incidences of 0.5 to1.4% [7,8].

Studies have reported that advanced maternal age and parity have impact on reproductive outcome. Research has also shown that maternal age 35 years and above has been associated with chromosomal abnormalities, infertility and other adverse reproductive outcomes [10,12,13]. Also, these women are at risk of medical conditions like hypertensive disorders in pregnancy and gestational diabetes, as well as obstetric complications like miscarriages, premature rupture of membranes, abnormal presentation, prolonged labour, preterm labour, antepartum haemorrhage and operative interventions [10,12]. These complications have no doubt contributed to the poor maternal and perinatal indices seen in most low-income settings.

Although several researchers in low and high-income countries have in the past reported pregnancy outcome amongst elderly primigravidae. There is need for a more recent update on this topic especially from this region as no data is available from Abakaliki, Ebonyi State of Nigeria. Hence this study was conducted with the aim of evaluating the outcome of pregnancy in primigravid women who were aged 35 years and above.

MATERIALS AND METHODS

A case-control retrospective study involving primigravid women who were aged 35 years and above was conducted at the Federal Teaching Hospital Abakaliki (FETHA), Ebonyi state, Nigeria. The study period was between January 1st, 2012 to December 31st, 2016. FETHA receives referral from the general hospitals, mission hospitals and primary health centres as well as privately owned hospitals and clinics.

Ethical approval was obtained from the ethics committee of the FETHA before embarking on this study. Ethical approval code: REC

protocol number 01/01/2012-31/12/2016; REC approval number FETHA/EAC/04/01/2017.

The inclusion criteria for the study group were primigravidae who were 35 years or older while the control group were two primigravidae between the ages of 20 and 25 years for each elderly primigravida. All the patients were booked in this facility. Case notes with incomplete data were excluded. Case files of those who met the inclusion criteria were retrieved and data collected. The information extracted from the patients' case files were age, marital status, occupation, and literacy level, gestational age at delivery, maternal antepartum, intrapartum and postpartum complications / significant events. The total number of deliveries for the study period was calculated.

STATISTICAL ANALYSIS

Data processing and analysis was carried out using SPSS version 17 (Statistical Package for Social Sciences). Data presentation was done using tables. Data was expressed as simple percentages, mean and standard deviation. Categorical variables were compared using chi-square test. A p-value of <0.05 was considered significant.

RESULTS

During the study period, there were 11,329 deliveries, of these 78 were elderly primigravidae (≥35 years), while the others were less than 35 years. The incidence of elderly primigravidae from this study was 0.69% or 1:145 deliveries. The mean age of the elderly primigravidae was 36.28±1.20 years while that of the younger primigravidae was 23.24±1.34 years.

[Table/Fig-1] shows that all (100%) the women in the study group had formal education compared with 85.9% in the control group. This was statistically significant (p<0.05) whereas 52 (66.67%) of those in the study group were civil servants, only 60 (38.50%) of the control were civil servants, this was significant (p=0.002). Comparing their marital status, majority of the cases 68 (87.20%) and control 144 (92.31%) were married while two of the women in the study group were divorced.

Characteristics	Cases (%)	Control (%)	χ^2	p-value
Educational status				
No education	0 (0.0)	22 (14.10)	1.12	0.033*
*Education	78 (100)	134 (85.90)		
Occupation				
Civil servant	52 (66.67)	60 (38.50)	13.21	0.002*
Trader	2 (2.56)	16 (10.30)		
Farmer	2 (2.56)	8 (5.10)		
House wives	22 (28.21)	72 (46.1)		
Marital status				
Married	68 (87.20)	144 (92.31)	1.12	0.291
Single	8 (10.26)	12 (7.69)		
Divorced	2 (2.56)	0 (0.00)		
Mean age	36.28±1.20 years	23.24±1.34 years		
No of women	78	156		

[Table/Fig-1]: Socio-demographic characteristics of the patients.
*Education-received either primary, secondary of tertiary education
*Chi-Square (χ^2)

[Table/Fig-2] showed that the incidence of anaemia, antepartum haemorrhage, hypertensive disorders, diabetes mellitus, preterm labour and fibroid were significantly higher in the study group than in the control group (p<0.05). Postdate was more frequent in the control group than in the study group.

[Table/Fig-3] indicates that the study group was more likely to suffer poor progress of labour and cephalo-pelvic disproportion significantly while failed induction of labour, malpresentation, primary postpartum haemorrhage, genital tract lacerations were not significantly different between the two groups.

Complications*	Case n (%)	Control n (%)	Chi–square (χ^2) value	p-value
Anaemia	26 (33.33)	6 (3.85)	28.52	0.0001*
Antepartum haemorrhage	20 (25.64)	6 (3.85)	34.23	0.0023*
Fibroid	20 (25.64)	0 (0.00)	38.45	0.003*
Hypertensive disorders	16 (20.51)	0 (0.00)	16.24	0.001*
Diabetes mellitus	6 (7.69)	0 (0.00)	4.51	0.004*
Preterm labour	12 (15.38)	5 (3.85)	18.56	<0.001*
Postdated pregnancies	14 (17.95)	24 (15.38)	0.80	0.08

[Table/Fig-2]: Antepartum complications.
*Multiple entries allowed

[Table/Fig-4] shows that, the study group had significant (p<0.05) proportion of delivery by caesarean section 36 (46.15%) while spontaneous vaginal delivery was higher in the control group 120 (76.92%). Instrumental vaginal delivery was not significantly different between the groups, 4 (5.13%) versus 10 (6.41%).

Complications	Case n (%)	Control n (%)	χ^2	p-value
Poor progress^	12 (15.38)	4 (2.56)	5.06	<0.001*
Failed induction of labour^^	4 (5.13)	6 (3.84)	1.23	0.101
Malpresentation	8 (10.25)	4 (2.56)	10.78	0.08
Cephalopelvic disproportion	16 (20.50)	6 (3.85)	6.55	<0.001*
Primary Postpartum haemorrhage	8 (10.25)	14 (9.00)	0.8	0.147
Genital tract laceration/episiotomy	20 (25.64)	24 (27.88)	2.21	0.333

[Table/Fig-3]: Labour, delivery and postpartum complications.
^Poor progress of labour refers to when the active phase of labour has lasted for more than 12 hours
^^Failed induction includes the failure to achieve vaginal delivery after induction of labour

Mode of delivery	Case n (%)	Control n (%)	Chi-square	p-value
Vaginal delivery	38 (48.72)	120 (76.92)	10.70	0.002*
Instrumental delivery	4 (5.13)	10 (6.41)	1.56	0.46
Caesarean section (C/S)	36 (46.15)	26 (16.67)	18.45	0.0045*

[Table/Fig-4]: Mode of delivery.

[Table/Fig-5] indicates that maternal request based on prolonged infertility was the commonest indication 6 (16.67%) for caesarean section in the study group while cephalopelvic disproportion was the commonest indication for caesarean section in the control group. Conception by assisted reproductive technology, fibroid and failed induction of labour were indications for caesarean section peculiar to the study group while malpresentation, fetal distress, abruption placenta and placenta praevia were common indications for caesarean section in both group of patients.

Indication	Case n (%)	Control n (%)
Malpresentation	4 (11.11)	6 (23.08)
Fetal distress	4 (11.11)	5 (19.23)
Cephalopelvic disproportion	4 (11.11)	6 (23.08)
Maternal request based on prolonged infertility	6 (16.67)	2 (4.52)
Assisted reproductive technology	2 (5.56)	0 (0.00)
Fibroid	4 (11.11)	0 (0.00)
Placenta previa	2 (5.56)	2 (4.52)
Failed induction	4 (11.11)	0 (0.00)
Pre-eclampsia/eclampsia	4 (11.11)	4 (15.38)
Abruptio placenta	2 (5.56)	1 (3.85)

[Table/Fig-5]: Indications for caesarean section (C/S).

From [Table/Fig-6], there was a significant difference (p<0.05) in preterm deliveries between the study and the control groups, however term and post term deliveries were not statistically different.

Gestational age (weeks)	Case n (%)	Control n (%)	χ^2	p-value
<37	16 (20.51)	8 (5.13)	8.68	0.001*
37-41^{+6}	56 (71.79)	144 (92.31)	2.03	0.189
≥42	6 (7.69)	4 (2.56)	0.92	0.06
Total	78 (100)	156 (100)		

[Table/Fig-6]: Gestational age at delivery.

[Table/Fig-7] shows that perinatal deaths were significantly higher in the study group 6 (7.69%) compared to the control group 0 (0.00). Although there was no significant difference in congenital malformation in the two groups, interestingly 4 babies with congenital anomalies were delivered in the control group as against 2 in the study group. The Apgar scores for the two groups were equally not significantly different but more babies in the study group were more likely to have Apgar scores less than 4 in the 1st minute and less than 7 at the 5th minute.

Outcome	Case n (%)	Control n (%)	χ^2	p-value
Perinatal death	6 (7.69)	0 (0.00)	13.26	<0.0001*
Congenital malformation	2 (2.56)	4 (2.56)	0.83	0.35
Low Apgar score				
<4 at 1 min.	14 (17.95)	20 (12.83)		0.876
<7 at 5 min.	6 (7.69)	10 (6.41)		0.576

[Table/Fig-7]: Birth outcome.

[Table/Fig-8] shows that the Postnatal clinic visit rate in the study group was 71.20% while the control group was 32.10%. This was statistically significant (χ^2=19.15; p<0.05).

Variable	Case n (%)	Control n (%)	χ^2	p-value
Attended	56 (71.20)	50 (32.10)	19.15	0.004*

[Table/Fig-8]: Postnatal visit.

DISCUSSION

The present study compared pregnancy outcome among elderly primigravidae (case) with those of younger primigravidae (control group). It was shown that overall, the study group had significantly higher frequencies of complications during pregnancy and in the puerperium than the control.

The incidence of elderly primigravida in this study was 0.69%. Bako B et al., in Maiduguri and Ilesanmi AO et al., in Ibadan reported a lower incidence of 0.42% and 0.07% respectively [5,13]. However, Ojule JD et al., in Port Harcourt and Eleje GU et al., in Nnewi reported a higher incidence of 1.6%, 1.4% and 2.6% respectively [8,14]. The possible reason for the higher incidence is because women in developed areas are more likely to delay marriage and child bearing in pursuit of carrier, educational advancement or even for social reasons [13,15]. The lower incidences [5,13] shows the sharp difference in cultural ideologies between developed and developing countries, coupled with rampant poverty and illiteracy, this makes early marriage common place in our setting [5,8,14].

The current study showed an increased risk frequency of hypertensive disorders of pregnancy, diabetes mellitus and antepartum haemorrhages among the elderly primigravidae during the antenatal period. These findings are similar to those of Shaikh F et al., and Eleje GU et al., who reported a higher incidence of anemia, antepartum haemorrhage, malpresentation, diabetes mellitus, abortion, congenital fetal anomaly and fibroids which were common among the elderly primigravidae [6,14]. Other studies also had similar outcome in varying proportions with consistently higher adverse feto-maternal outcome among the elderly primigravidae [1,5,12,16]. This might be due to the ageing process which is associated with increased risk of chronic medical morbidities such as diabetes, fibroids, reduced oocyte quality and hypertension [9-11,17].

Intrapartum, women in the study group had higher frequencies of poor progress of labour, cephalopelvic disproportion and dysfunctional labour, necessitating oxytocin augmentation of labour. This was similar to findings reported from studies elsewhere [3,12,18]. It is pertinent to note that 36 of the 78 deliveries in the study group were by caesarean section and the commonest indication was advanced maternal age with prolonged infertility (26.92%) and maternal request (19.23%). The reason for this is due to both physician and parturient's behaviour related to anxiety about uncertain pregnancy outcome in women of advanced age, more so when some of them may have suffered long period of infertility. Such pregnancies are considered "precious", necessitating the resort to caesarean section which is considered safer for the baby, although there is no evidence to substantiate this assumption. This same reason was found to account for increased caesarean section rate from other studies [1,5,9,10].

Following delivery, women in the study group exhibited a preponderance of primary postpartum haemorrhage and genital tract laceration/episiotomy. This might be due to the high incidence of antepartum anaemia, antepartum haemorrhage and fibroids among them. These morbidities are recognised risk factors for postpartum haemorrhage [19].

Studies have shown significant disparities in terms of fetal outcome among elderly and young primigravidae [1-3,11,15-17,20]. We found that elderly primigravid women fared worse in terms of preterm deliveries and perinatal mortality but poor APGAR scores at the 1st and 5th minutes, congenital anomalies and macrosomia were not significantly different between the two groups. This may not be unconnected to the high incidence of medical morbidities that predated labour and that may have constituted an indication for earlier delivery. On the positive side, the elderly primigravidae were more likely to come for the 6th week postnatal visit. This might be due to increased level of awareness, higher social status and the desire to allay anxiety about the welfare of their 'precious baby'.

Authors' Name(s)	Place of Study	Case (n)	Control (n)	Incidence rate	CS rate	Vaginal delivery rate	Complications
Eke AC et al., [23]	Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, South-east Nigeria	82	131	2.6%	53.7%	94.6%	Increased risk of anemia, antepartum haemorrhage, diabetes mellitus, mal-presentation, hyperemesis gravid arum, IUGR and fibroid.
Ojule JD et al., [8]	University of Port Harcourt Teaching Hospital (UPTH)	74	1515	4.7%	58.1%	36.5%	Birth asphyxia, placenta previa, cephalopelvic disproportion, breech presentations, pre-eclampsia and low birth weight babies.
Bako B et al., [5]	University oMaiduguri Teaching Hospital, Maiduguri Nigeria	94	94	0.42%	52.13%	9.57%	Threatened miscarriage, PROM, Preterm delivery, Placental Abruption, Obstructed labour, Fetal distress, PPH, Assisted Vaginal delivery, Caesarean section, LBW, IUGR, Congenital Malformation, Stillbirth, pregnancy induced hypertension and/or preeclampsia, spina bifida occulta, hypospediasis.
Onoja B et al., [21]	Jos University Teaching Hospital	14	397	3.4%	23.6%	28.6%	Failure to progress in labour, spontaneous vaginal delivery, IUFD, CPD, hypertension in pregnancy.

Ibrahim SA et al., [22]	Aminu Kano Teaching Hospital Kano,	280	276	1.6%	40.7%	33.3%	Hypertensive disorders in pregnancy, diabetes, antepartum haemorrhage, uterine fibroids, diabetes mellitus.
Opadiran RO et al., [20]	University of Abuja Teaching hospital (UATH)	30	30	1.2%	60.0%	43.3%	Increased risk of hypertensive disorders in pregnancy, Diabetes Mellitus, Uterine fibroid, APH, Anaemia in pregnancy, Malaria in pregnancy, Preterm labour, Post term, Macrosomia, PROM
Present Study	Federal Teaching Hospital, Abakaliki, Ebonyi State.	78	156	0.69%	46.15%	48.72%	Anaemia, antepartum haemorrhage, hypertensive disorders of pregnancies, diabetes mellitus and higher preterm labour, poor progress of labour, failed induction, fetal distress, cephalopelvic disproportion as well as postpartum complications of genital tract lacerations and primary postpartum haemorrhage

[Table/Fig-9]: Comparing findings of this study to findings from other studies [5,8,20-23].

This study has higher caesarean section rate than that of Onoja B et al., but similar to that of Ibrahim SA et al., [21,22]. Caesarean section rate of 46.15% in this study is high and also similar to other reviewed series [5,8,21,23]. Maternal and obstetrician's concern might be responsible for the high surgical intervention in the elderly primigravidae. The higher concern for safety among the elderly primigravidae has been reported earlier by Windridge KC et al., [24].

Present study shows vaginal delivery rate of 48.72%. This is similar to that of Opadiran RO et al., [20] and higher than other reviewed series [5,8,23,24]. More so, all reviewed series [5,8,21-23] showed similar complications to the present study.

[Table/Fig-9] Compares the findings of the present study from other studies.

LIMITATION

The limitations were that the research was a single-centre hospital study and the sample size was relatively small. We therefore recommend a larger, prospective multi-centre study for future research.

CONCLUSION

In conclusion, feto-maternal morbidities has high incidence among women conceiving at advanced age. From the study group, the results show more antepartum and Intrapartum complications which led to a higher caesarean section rate. The onus lies on the government and health care providers at all levels to raise awareness about the obstetric implications of delaying childbirth. Such women should be educated on the need to register early for antenatal care to ensure adequate screening and management of morbidities that may complicate pregnancy among women of advanced age.

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