

Pregnancy Outcome in Elderly Primigravidae: A 5-year Review in a Tertiary Health Care Institution in Abakaliki, Southeast, Nigeria

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Abstract Background: Pregnancies in women of advanced maternal age have been historically regarded as high risk pregnancies because of the associated increase in risk of maternal and perinatal morbidity and/or mortality. Hence, there is a need to evaluate the pregnancy outcome of elderly primigravidae in our setting. **Aim:** To determine the pregnancy outcomes in elderly primigravidae compared to the younger primigravidae at Alex Ekwueme Federal University Teaching Hospital, Abakaliki. **Materials and Method:** This was a retrospective case-control study of pregnancy outcomes of 49 elderly primigravidae (case group), who delivered at the hospital over a 5-year period, were compared with those of 98 younger primigravidae (control group) (≤ 34 years old) that delivered during the same period. Data collection was done using a pre-designed proforma; analysis was done using Epi Info 7.2.1 CDC. **Result:** During the study period, there were 11703 deliveries. The incidence of elderly primigravidity was 0.42%. The mean age of the study group was 36.5 ± 1.7 years and that of the control group was 24.3 ± 4.2 years. Forty-four (89.8%) patients were booked in the study group, while 71 (72.8%) patients were booked in the control group. Elderly primigravidae were more likely to book before 14 weeks' gestational age compared with younger primigravidae ($\chi^2=33.29$, $P<0.0001$). The average gestational age at delivery for the study group and control group were 39.0 ± 3.7 weeks and 37.0 ± 4.1 weeks respectively. The incidence of malaria infection was higher in the younger control group while in the elderly primigravidae the rate of diabetes mellitus, hypertensive disorders, multiple gestation and anaemia were higher; but not statistically significant ($p>0.05$). The caesarean section rate in the case group was higher but of no statistical significance ($p=0.51$). There was no recorded maternal death in both groups. **Conclusion:** Elderly primigravidity is not uncommon in our environment. Due to the anxiety associated with such pregnancies they were more likely to book earlier than the younger primigravidae. Although they were more likely to have medical complications, the maternal and perinatal outcomes were not statistically different from younger primigravidae.

Keywords: elderly, primigravidae, pregnancy, outcomes, Abakaliki

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1. Introduction

Pregnancy has for generations been portrayed as a wonderful time for anticipation of the ultimate reason for being a woman [1]. As a woman's age advances these anticipation and associated risks increase. A woman's fertility and potential to have a conception diminishes with advancing age. The elderly primigravida is defined as a woman who goes into pregnancy for the first time at the age of 35 years or more [1-5]. It has become increasingly common and traditionally, pregnancies in women of

advanced maternal age have been regarded as high risk pregnancies because of the associated increase risk of maternal and perinatal morbidity and/or mortality [6-10].

A number of factors might be responsible for this increasing trend. In recent times, women have changed their life styles such that they pursue higher education and enter into work force and career advancement outside the home. Consequently, this has led to postponement of childbearing, resulting in a maternal age of 35 years or more at first pregnancy and childbirth which is considered as advanced reproductive age [8-11]. Advances in assisted reproductive technology (ART), effective birth control, delayed marriage and increase in the rate of divorce,

followed by re-marriage, also contribute to this upward trend [1-7].

It is unfortunately true that simply by being older, a woman has had more chances to develop medical disorders such as diabetes, hypertensive disorders, infertility or fibroids. In addition the incidence of chromosomal abnormalities, spontaneous abortions, multiple gestation, perinatal morbidity and mortality and other obstetric complications are increased [6-9]. Many debates have taken place about whether these women are at greater risk for pregnancy complications because of their age [10]. It is of note that a few studies have found an association between delaying child birth and poor pregnancy outcomes while other studies challenge these findings [11-18]. Preeclampsia, antepartum haemorrhage, GDM, fibroid complicating pregnancy, caesarean section rates (both elective and emergency), low birth weight babies, malpresentation, premature rupture of membranes (PROM) and fetal distress and anomalous babies were significantly higher in elderly nulliparous women than the younger nulliparous controls [19-22]. However other studies have found no differences in these complications when compared to younger aged women [16-24].

A definitive increase in the number of women in this group is expected to occur both in developed and developing countries thus necessitating an in-depth review and updating of knowledge in the management of this category of women. There has not been any similar study in our environment; hence this study is aimed at determining the outcome of elderly primigravidae when compared to the younger control group. Therefore, the aim of this study is to determine the pregnancy outcomes in elderly primigravidae at the Alex Ekwueme Federal University Teaching Hospital, Abakaliki.

2. Materials and Method

This was a retrospective case-control study of elderly primigravidae (case) managed at the Obstetrics and Gynaecology Department of Alex Ekwueme Federal University Teaching Hospital, Abakaliki over a 5-year period. The hospital serves as a major referral center for Ebonyi, Benue and Cross River states. Patients are usually referred from general hospitals, government owned health centers, private hospitals and from other department in the hospital. The state has a population of 2.1 million people based on the 2006 national population census and occupies a land mass of 5932 kilometers square [25]. The cases included consecutive elderly primigravid patients (primigravid parturients ≥ 35 years old) managed at the facility from 1st January 2012 to December 31st 2016. The case notes were retrieved over a three month period from the Medical Records Department, Gynaecological Emergency, Labour Ward, Operation Theatre, and data extracted into a study proforma focusing on socio-demographic and obstetric characteristics including age, parity, occupational status, booking status, gestational age, mode of delivery, maternal and fetal morbidities and mortalities. The case files were thoroughly scrutinized and coded to avoid multiple entries. The control included two subsequent deliveries in parturients ≤ 34 years of age. Women who had incomplete data were excluded from the study.

Data analysis was done using Epi Info soft ware (7.2.1 CDC Atlanta Georgia). The results were expressed as frequency tables, percentages, mean and standard deviation. Associations between categorical data were analyzed using Chi square (X^2), while continuous variables were analysed using the Student t test, with a p-value < 0.05 considered statistically significant. Ethical clearance was sought and obtained from the Health Research and Ethics committee of the Alex Ekwueme Federal University Teaching Hospital, Abakaliki.

3. Results

Total deliveries at the center during our study was 11703, the primigravidae were 735 out of which 147 (20.0%) met the study criteria and were included in this study. The women aged 35 years and above at their first delivery constituted 0.42% of all the deliveries at the centre during this study. The mean age of the study group was 36.51 ± 1.75 years and the modal age was 35 years while the values for mean and modal ages for the control counterparts were 24.3 ± 4.23 and 27 years respectively. This difference in their mean age was statistically significant ($X^2 = 5.52$, $P < 0.0001$).

Table 1. Maternal socio-demographic characteristics

Parameters	Cases, n(%)	Control, n(%)	X^2	P-value
Marital status				
Single	2 (4.1%)	14 (14.3%)	3.47	0.06
Married	47 (95.9%)	84 (85.7%)		
Booking status				
Booked	44 (89.8%)	71 (72.4%)	5.73	0.01
Unbooked	5 (10.2%)	27 (27.6%)		
Educational status				
Primary	3 (6.1%)	22 (22.4%)	18.59	0.0002
Secondary	13 (26.5%)	51 (52.1%)		
Tertiary	48 (67.4%)	25 (25.5%)		
Employment status				
Employed	34 (69.4%)	61 (62.2%)	0.72	0.39
Unemployed	15 (30.6%)	37 (37.8%)		

Table 1 shows maternal socio-demographic characteristics, the elderly primigravidae were more likely to have tertiary education compared to the control group ($X^2 = 18.598$, $P = 0.0002$). They were also more likely to be booked than the control group ($P = 0.016$). There was no significant difference in the marital and employment status of both groups.

Table 2. Gestational age at booking and antenatal complications

Parameters	Cases, n(%)	Control, n(%)	X^2	P-value
Age at Booking				
≤ 14 weeks	33 (67.3%)	11 (11.2%)	33.29	0.0001
> 14 weeks	16 (32.7%)	60 (88.8%)		
Complications				
Anaemia	5 (10.2%)	7 (7.1%)	0.337	0.5612
GDM	8 (16.3%)	5 (5.1%)	2.262	0.1326
Hypertensive disorders	11 (22.4%)	4 (4.1%)	4.336	0.037
Malaria	5 (10.2%)	17 (17.3%)		
Multiple gestation				
Twin	3 (6.1%)	1 (1.0%)	-	-
Triplet	1 (2.1%)	0 (0.0%)		

Antenatal parameters and complications are shown in Table 2. The case group was more likely to book early for antenatal care compared to the control group (0.0001). Conversely the younger primigravidae (control group) were significantly more likely to suffer from malaria infection in pregnancy than the elderly primigravidae. There was no difference in the other antenatal parameters assessed.

Table 3 shows the labour and delivery characteristics of the study cohorts. The younger primigravidae (control group) are more likely to have post date delivery, and spontaneous vaginal delivery compared to the elderly primigravidae (case group). There was no statistical difference in the postpartum complications assessed. The average gestational age at delivery for the study group and control group were 39.0 ± 3.7 weeks and 37.0 ± 4.1 weeks respectively.

Table 3. Labour and delivery outcomes of the cases and controls

Parameters	Cases, n(%)	Control, n(%)	X ²	P-value
Gestational age at delivery				
Preterm	10 (20.4%)	11 (11.2%)	2.03	0.15
Term	26 (53.1%)	51 (52.0%)		
Post date	13 (26.5%)	32 (36.8%)		
Mode of Delivery				
Vaginal delivery	20 (40.8%)	60 (61.2%)	2.96	0.08
Instrumental delivery	4 (8.2%)	6 (6.1%)		
Caesarean section	25 (51.0%)	32 (32.7%)		
Postpartum Complications				
Postpartum haemorrhage	6 (12.2%)	10 (10.2%)	0.44	0.50
Puerperal Blues	2 (4.1%)	4 (4.1%)		
Retained Placenta	2 (4.1%)	2 (2.0%)		
None	39 (79.6%)	82 (83.7%)		

Table 4. Perinatal outcomes of the cases and controls

Parameters	Cases, n(%)	Control, n(%)	X ²	P-value
Birth weight (kg)				
< 2.5	10 (20.4%)	15 (15.3%)	0.01	0.90
2.5 – 3.9	38 (77.6%)	76 (77.6%)		
≥ 4.0	1 (2.0%)	7 (7.1%)		
Mean birth weight	2.92 ± 0.6	3.02 ± 0.6	-	0.37
Apgar score 5th minute				
< 7	6 (12.2%)	7 (7.1%)	1.05	0.30
>7	43 (87.7%)	91 (92.9%)		
Birth Asphyxia	2 (4.1%)	2 (2.0%)	0.008	0.92
Early Neonatal Death	4 (8.2%)	5 (5.1%)		
NICU Admission	7 (14.3%)	8 (8.2%)		

The perinatal outcome between both groups are shown in Table 4. There were no statistically significant differences in the mean birth weight, Apgar scores at the 5th minute, and the perinatal complications.

4. Discussion

Maternal age is an important determinant of pregnancy outcome and women aged 35 years and above delivering their first child are considered as at risk obstetric patients [1]. The prevalence of elderly primigravida in this study was 0.4 %, which is lower than 1.6%-6.8 reported in similar studies within and outside Nigeria [2,3,4,10]. The lower proportion of elderly primigravidae noted in this study in Abakaliki, Ebonyi state, South Eastern, Nigeria

could be as a result of the early marriage which is a cultural practice of the majority of the populace in this part of the Nigeria. This is also a reflection of the national value [25]. A number of factors might be responsible for this increasing trend. In recent times, women have changed their life styles such that they pursue of higher education and enter into work forces and career advancement outside the home [8,11]. In the study, we found out that about 96% of the elderly primigravidae were married, unlike among the younger primigravidae in which about 5% were single. In addition, elderly primigravidae had tertiary level of education when compared to the younger primigravidae and a slightly increased rate of the control group was unemployed. This showed that the elderly primigravidae were of high social class, and justifying what is stated above. There was significant difference on the booking status between the two groups, elderly primigravidae were significantly associated with early booking. This trend may be as a result of the anxiety associated with such pregnancies. Although not assessed in this study, they are more likely to have been treated for infertility and hence more likely to book early.

Medical conditions in pregnancy like diabetes mellitus and hypertensive disorders were higher among the elderly primigravidae than in the younger age group though showed no statistical significance. Anaemia was also higher in the elderly primigravidae compared with the younger primigravidae. This could be on account of advanced maternal age which tends to increase the chances of pregnancy being complicated by medical conditions and is in keeping with results of other studies [16,17,18,19]. Younger primigravidae had more cases of malaria in pregnancy compared to elderly primigravidae in this study, the reason for this finding may not be readily deciphered for this study; but may not be unconnected to the apparent class difference and social status between both groups.

The percentage of prolonged pregnancy was higher among the younger age group than the elderly primigravidae, as was the case in another study [10]. This was not consistent with the findings in Eastern part of Nigeria by Eke A.C et al [4] and Onoja et al [8]. The rate of preterm deliveries was almost double in the case group compared to the control group though both had similar rates in term deliveries, supported by another study [7]. There was no statistical difference in both groups as regards the gestational age at delivery. The average gestational age at delivery for the study group and control group were 39.0 ± 3.7 weeks and 37.0 ± 4.1 weeks respectively. There was no statistical significance between the two groups with regard to the gestational age at delivery ($p = 0.153$). Elderly primigravidae had higher caesarean delivery rate compared to young primigravidae, this was similar to an increased caesarean delivery reported in other studies [2,8,12,13]. The reason for this increased caesarean section rate may be as a result of anxiety associated with the management of this labour and delivery; more so they are more likely to have conceived from fertility treatment, for which most had elective caesarean section due to the associated "precious baby".

The rate of postpartum complications were commoner among elderly primigravidae, in this study postpartum

hemorrhage and retained placenta were found more among the case groups than in the control groups, although the difference was not statistically significant. Similar findings have been reported in other studies [1,2,8,10]. The increased likelihood of the elderly primigravidae to have interventional delivery therefore obstetric hemorrhage could be as a result of high rate of co-existing uterine fibroids, malpresentation, rigid perineum and ante partum hemorrhage.

The mean birth weight of the neonates in both case and study groups was similar (2.92 ± 0.68 vs 3.02 ± 0.54 , $P = 0.378$), this was not statistically significant. The rate of macrosomia, perinatal asphyxia, early neonatal deaths and neonatal admission in the case group was not significantly higher than the control group as in other studies [16,19,23]. This may however suggest that primigravida does not have any different relationships to perinatal outcomes as was also found in another study [24]. Similar studies have reported these findings as primigravidae have been considered high risk pregnancy hence requires astute management in labour.

5. Conclusion

In conclusion, the incidence of elderly primigravida was low in this study and the majority of them delivered at term. They were more likely to be booked for antenatal care and were also more likely to book early for antenatal care. The rate of malaria in pregnancy was less likely among them, though had increased rate of medical and perinatal complications. Other maternal findings were similar. The implementation of emergency obstetric care during labour and delivery in centres that have adequate facilities and personnel is ideal for better outcome.

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Conflict of Interest

There are no conflict of interest.

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