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Full Length Research Paper

Pregnancy outcome in elderly primigravidae at the University of Maiduguri Teaching Hospital, Maiduguri, Nigeria

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Maternal age is an important determinant of pregnancy outcome and women aged 35 years and above undergoing their first pregnancy are often classified as high risk obstetric patients. The objective of this study was to determine the birth outcome in some women going through their first pregnancy at 35 years and above compared with their younger counter parts aged 20-34 years. A ten year retrospective case-control study of the birth outcome of elderly primigravidae compared with younger primigravidae (20-34 years) managed at the University of Maiduguri teaching hospital, Maiduguri, Nigeria. During the study period, there were 24,085 deliveries out of which 102 were elderly primigravidae giving the incidence of 0.42%. The elderly primigravidae are more prone to pregnancy induced hypertension and Preeclampsia (x^2=9.41, p=0.002) and caesarean section (x^2=30.26, p=0.0001) compared to the younger mother. However, the incidences of post date pregnancy and failed induction of labour (FIOL) were found to be much higher in the control than the elderly primigravidae with p values of 0.001 and 0.024 respectively. There was no statistically significant difference in the incidence of miscarriages, premature rupture of membranes (PROM), placental abruption, preterm labour/contractions, instrumental vaginal deliveries and fetal outcome in the two groups. Elderly primigravidae are at an increased risk of pregnancy induced hypertension and Preeclampsia as well as caesarean delivery than the younger primigravidae. However the fetal outcomes are comparable. We recommend modification of social habits to reduce the occurrence of elderly primigravida.

Key words: Birth outcome, elderly primigravidae and pregnancy complications.

INTRODUCTION

In obstetric practice, maternal age is an important determinant of the outcome of pregnancy and both extremes are known to be associated with adverse maternal and fetal outcomes (Sivalingam and Avalani, 1989; Cleary-Goldman et al., 2005).

In recent years, the pursuit of education and career has made many women to defer child bearing until they are in their late 30s. This trend has resulted in increase in the number of women aged 35 years and above undergoing their first pregnancies. Traditionally such women are considered to be high risk obstetric patients because of the complications associated with their pregnancies and deliveries (Agboola, 2001; Heffner, 2004; Cleary-Goldman et al., 2005).

Previous studies have suggested that they are more prone to developing medical and obstetric complications in pregnancy such as miscarriages, hypertensive disorders in pregnancy, gestational diabetes, malpresentation, preterm labour and antepartum haemorrhage (Sivalingam and Avalani, 1989; Ziadeh, 2002). In labour, they are also at increased risk of caesarean section and instrumental vaginal delivery (Ilesanmi et al., 1998; Sizer et al., 2000; Cleary-Goldman et al., 2005). The incidence of fetal distress and perinatal morbidity and mortality were significantly higher among the elderly primigravidae than their younger counterparts (Ling et al., 2008; Ziadeh, 2002). However, with the impr-

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vement in obstetric care, these risks have continued to be a subject of controversy (Suwanrath et al., 1998). Some authors reported that pregnancy and birth outcome are poor (Berkomtz et al., 1990; Ales et al., 1990; Breart, 1997), while others reported no difference (Urguhart et al., 1991, Ojule et al., 2011). This study was designed to compare pregnancy and birth outcomes of elderly primigravid mothers with younger primigravidae aged 20-34 years.

MATERIALS AND METHODS

The labour ward register and case records were used and all elderly primigravid women delivered at the University of Maiduguri Teaching Hospital over a period of 10 years from 1st January 2001- 31st December 2010 were identified. The case notes were retrieved and studied retrospectively. For each elderly primigravida, the next primigravida aged 20-34 years that delivered was used as a control. Data regarding socio-demographic characteristic such as age, level of education, occupation, religion, booking status, pregnancy complications, intra/postpartum complications, mode of delivery and neonatal outcome were extracted from the case notes. The information was coded and transferred onto a profoma designed for the study. This was then transferred onto SPSS version 16 statistical software and analyzed. The socio-demographic characteristics, pregnancy complications and birth outcomes are presented as percentages on frequency tables. Chi-square test and student t test were used to analyze for categorical variables and continuous variables respectively. Multinomial logistic regression was used for multivariate analysis to construct a model for maternal characteristics, pregnancy complications and birth outcome. The statistical significance was set at $P< 0.05$.

Elderly primigravidae are women aged 35 years and above undergoing their first pregnancies as described by Sivalingam and Avalani in 1989.

RESULT

During the study period there were 24,085 deliveries at the UMTH, Maiduguri and 102 of these were elderly primigravidae, giving an incidence of 0.42%. Out of the 102 patients, 94 case notes were retrieved making 92.2% retrieval rate and these were analyzed in the study.

The mean age of the elderly primigravidae (cases) group was 36.26 $\pm$ 1.59 years, and 24.20 $\pm$ 2.85 years for the control group. Eighty two (87.23%) of the elderly primigravidae had formal education compared to 44(46.81%) of the control. Abysmal 10(10.64%) of the control were career civil servants compared to 54(57.45%) among the cases. Most of the elderly primigravidae (58.51%) were Christians compared to 39(41.49%) among the control as shown in table 1. The mean heights in meters and weights in kilogram of the 2 groups were similar; 162.45 $\pm$ 4.68 versus 160.54 $\pm$ 15.54 and 69.08 $\pm$ 7.37 versus 63.23 $\pm$ 9.47 respectively with p values of 0.178 and p=0.075 respectively.

Table 2 compared the pregnancy complications and birth outcomes in the two groups. Twenty one (22.34%) women among the elderly primigravidae developed pregnancy induced hypertension and/or preeclampsia during antenatal period compared to 6 (6.38%) in the control and the difference was statistically significant. Similarly, 49(52.13%) of the elderly primigravidae had caesarean delivery compared to 12(12.76%) of the younger mothers, $X^2=30.26$, $p<0.0001$. However, the incidences of post date pregnancy and failed induction of labour (FIOL) were found to be much higher in the control than the elderly primigravidae with p values of 0.001 and 0.024 respectively. There was no statistically significant difference in the incidence of miscarriages, premature rupture of membranes (PROM), placental abruption, preterm labour/contractions, instrumental vaginal deliveries and fetal outcome in the two groups as shown in the table. There were 3 babies delivered with congenital anomalies in the studied population. A baby each in both the cases and control group with spina bifida occulta and another in the case with hypospediasis. However, there was no statistically significant difference in the occurrence of these anomalies between the two groups as shown in table 1.

Even after logistic regression analysis we found that the elderly primigravidae were more likely to be educated with OR=15.87, CI: 6.84-36.82. In the same vain pregnancy induced hypertension/preeclampsia and caesarean delivery were significantly higher among the elderly primigravidae with OR=3.58, CI: 1.85-10.68 and CI=7.16, CI: 2.99-16.99 respectively.

Table 3 showed the indications for Caesarean section in the patients studied.

The indications for caesarean section in the 2 groups varied widely, most of the elderly primigravidae (58.6%0) were offered caesarean delivery on the account of being elderly primigravidae or on maternal request. While 42.11% of the controls had caesarean delivery because of cephalopelvic disproportion or obstructed labour and the difference were statistically significant as shown in table 3. Most of the caesarean deliveries are elective among the elderly primigravidae 41/49 (83.67%) compared to 3/12 (25.0%) in the control.

DISCUSSION

The incidence of elderly primigravidae of 0.42% in this study is higher than 0.07% reported by Ilesanmi (1998) in Ibadan, Nigeria but lower than 1.4% reported by Ojule et al (2011) in Port-Harcourt, Nigeria and 0.65% reported by Sivalingam and Avalani (1989) in Malaysia.

Table 1. Sociodemographic characteristic of the patients.

S/NO	Characteristic	Cases (%)	Control (%)	X^2	P value
1.	**Educational status**				
	No formal education	12(12.76)	50(53.19)	34.75	0.000
	Formal education	82(87.23)	44(46.81)		
	Total	94(100)	94(100)		
2.	**Occupation**				
	House wives	19(20.21)	71(75.53)	57.64	0.000
	Student	9(9.57)	12(12.76)		
	Business	12(12.77)	1(1.06)		
	Civil servant	54(57.45)	10(10.64)		
	Total	94(100)	94(100)		
3.	**Religion**				
	Christians	55(58.51)	32(34.04)	11.32	0.001
	Muslims	39(41.49)	62(65.96)		
	Total	94(100)	94(100)		
4.	**Booking status**				
	Booked	82(87.23)	73(77.66)	2.97	0.080
	Unbooked	12(12.77)	21(22.34)		
	Total	94(100.)	94(100.)		

Table 2. Pregnancy complications and birth outcome.

Complications	Cases(%)	Control(%)	X^2	P value
Threatened miscarriage	9(9.57)	8(8.51)	0.064	0.801
PROM	9(9.57)	5(5.32)	1.215	0.271
Preterm delivery	8(8.51)	4(4.36)	1.405	0.236
PIH/Preeclampsia	21(22.34)	6(6.38)	9.41	0.002
Placental Abruption	3(3.19)	2(2.12)	0.204	0.651
Post date	0(0.00)	10(10.64)	10.44	0.001
Obstructed labour	2(2.12)	3(3.19)	0.204	0.651
Fetal distress	4(4.26)	2(2.12)	0.684	0.408
FIOL	0(0.00)	5(5.31)	5.108	0.024
PPH	5(5.32)	2(2.12)	1.325	0.250
Assisted Vaginal delivery	9(9.57)	7(7.45)	0.268	0.605
Caesarean section	49(52.13)	12(12.76)	30.26	0.000
LBW	19(20.13)	17(17.09)	0.269	0.874
IUGR	9(9.57)	6(6.38)	0.613	0.965
5th minutes Apgar score	3(3.19)	1(1.06)	2.01	0.365
Congenital Malformation	2(2.12)	1(1.06)	0.345	0.206
Stillbirth	2(2.12)	0(0.00)	2.017	0.156

Key:
PROM: Premature rupture of membranes
PIH: Pregnancy induced hypertension

The lower incidence in this study is because women in this part of the world venture into marriage at an earlier age and therefore start child bearing before they are 35 years. This may not be unconnected to the culture and religion of the people of Borno state who are predominantly Muslims. However, the recent National Demographic Health Survey in 2008 showed that the age at first birth is rising slowly and the average age at first birth in the North-eastern Nigeria is 18.2 years.

Our study showed a preponderance of formal education among the elderly primigravidae with more than half of them have attended formal education and majority are gainfully employed. The pursuit for higher education and career perhaps contributed to the delay in starting child-

Table 3. Multinomial logistic regression analysis model of maternal characteristics and pregnancy complications in elderly primigravidae.

	Odd Ratio	95% Confidence Interval	P value
Educational status			
Elderly primigravidae	15.87	6.84 - 36.82	0.00
Controls	-		
Booked patients			
Elderly primigravidae	2.83	1.05 - 5.45	0.01
Controls	-		
PIH/Preeclampsia			
Elderly primigravidae	3.58	1.85 - 10.68	0.04
Controls	-		
Caesarean section			
Elderly primigravidae	7.17	2.99 - 16.99	0.00
Controls	-		

Table 4. Indications for caesarean section.

S/No	Indication	Cases	Controls	X^2	P value
1.	Elderly primigravida	18(31.03)	0(0.00)	6.060	0.014
2.	Maternal request	16(27.59)	1(5.26)	2.949	0.086
3.	PIH/Preeclampsia	11(19.97)	2(10.53)	0.249	0.617
4.	CPD/Obstructed labour	7(12.07)	8(42.11)	8.232	0.004
5.	Fetal distress	4(6.89)	2(10.53)	0.0000	0.985
6.	Placental abruption	2(3.45)	1(5.26)	0.000	1.000
7.	FIOL	0(0.00)	5(26.32)	13.856	0.000
	Total*	58	19		

*The total is higher than for the caesarean section because of multiple indications in some patients.
PIH: Pregnancy induced hypertension
CDP: Cephalopelvic disproportion
FIOL: Failed induction of labour

bearing among the elderly primigravid mothers. This finding is similar to the findings reported from other centres (Sivalingam and Avalani, 1989; Bell JS et al., 2001; Ziadeh, 2002).

Similar to the findings by Joseph et al., (2005) and Oboro and Dare, (2006) we found an increase occurrence of pregnancy induced hypertension (PIH) and Preeclampsia in the older mothers. The elderly primigravidae are at least 3 times more likely to develop pregnancy induced hypertension/peeclampsia than the younger mothers. This may not be unconnected to the fact that advancing maternal age is known to increase the risk of other chronic diseases particularly diabetes mellitus and hypertension. Our finding however contrasts with the finding of Ojule et al., (2011), who reported no increase occurrence of PIH/Preeclampsia amongst the older mothers.

Post date pregnancies were found to be higher among the control group, this may be because the care givers are more comfortable allowing the younger mothers to go post date before inducing them. Additionally, higher rate of the elective caesarean section for the elderly primigravidae shown in the study will result in lower occurrence of post date among them. More so that most elective caesarean sections are done at 38-39 weeks in our centre.

The incidence of caesarean section among the elderly primigravidae was higher than among the younger group. This is similar to the series reported from other centres (Bell JS et al., 2001; Cleary-Goldman et al., 2005; . Jirattigalachote and Prechapanich, 2008). Concerns about the maternal age as a cause of increase maternal and perinatal morbidity and mortality has made the routine recommendation of elective caesarean section for these women in the past and this tradition has been maintained by many doctors as seen in our study with many of the caesarean sections been done based on this presumption. In some cases, the mothers are so appreh-

ensive that they request for caesarean section, and in this study maternal request was the second commonest indication for caesarean delivery. The high rate of maternal request among the study group may be explained the fact that the elderly primigravidae often consider their pregnancies as precious and are less willing to take risks with vaginal delivery. The higher concern for safety amongst the elderly primigravidae has been reported earlier by windrigde et al (1999) and many of the elderly primigravidae may feel that elective c/s is safer than vaginal delivery for their babies. However there is no firm evidence to substantiate this claim (Idama and Lindow, 1999).

Both maternal and obstetrician's concerns are responsible for the undue intervention especially the caesarean delivery in the elderly primigravidae. The implication of this increased intervention is that it will lead to increased medical demand on the scarce resources particularly in a low resource setting like ours. Until a firm evidence of the benefit of such intervention is established, elderly primigravidae should have adequate counseling and allowed to make informed choice on their mode of delivery and also be supported to try vaginal delivery where feasible.

The fetal outcome among the older primigravid women is generally controversial, some reported increased in perinatal mortality (Fretts and Usher, 1997; Astolfi et al., 2005; Ling et al., 2008) while others did not (Oboro and Dare, 2006; Ojule et al., 2011). Our study revealed no significant difference in terms of fetal outcome, congenital malformations, stillbirth, neonatal death, and APGAR scores between the two groups.

Anthropometric measures may play a significant role in obstetric performance especially those at high risk of developing cephalopelvic disproportion and medical conditions in pregnancy. However, in this study there were no statistically significant difference in the maternal height and weight at booking between the two groups. Hence, this might not have influenced the birth outcome in this study. There was no maternal mortality during the period of the study in the two groups.

CONCLUSION

Elderly primigravidae are at an increased risk of pregnancy induced hypertension/Preeclampsia and caesarean delivery than the younger primigravidae. However there is no difference in the fetal outcome in the two groups.

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