ORIGINAL ARTICLE

Grand multiparity: Obstetric performance in Aminu Kano Teaching Hospital, Kano, Nigeria

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Abstract

Objective: The objective was to review the obstetric performance of booked grand multiparae.

Design and Setting: A 5-year prospective observational study of cases between January 1, 2002, and December 31, 2006, was conducted in Aminu Kano Teaching Hospital, a tertiary institution, in Kano, Nigeria.

Materials and Methods: The antenatal complications and pregnancy outcomes among booked grand mulitparous women (pregnancy after fifth delivery), who delivered in our labor ward, were compared with those of the booked mulitparae (parae 1–4) who delivered immediately after a grand multipara.

Outcome Measures: These were obstetric factors of maternal age and parity, antepartum hemorrhage, fetal malpresentations, and multiple pregnancy. Medical complications were gestational diabetes, hypertension, anemia, and heart disease. Pregnancy outcomes measured were gestational age at delivery, birth weight, mode of delivery, postpartum hemorrhage, and maternal and perinatal mortality.

Results: The age range of the grand multiparae was between 22 and 43 years, with a mean age of 29.72 + 2.07 years. The parity range was between 5 and 15, with a mean parity of 7.78 + 0.63. There was increased occurrence of gestational diabetes mellitus (OR = 12.55, CI = 6.72–23.91), hypertension (OR = 3.07, CI = 2.07–4.59), heart disease (OR = 2.01, CI = 0.70–6.08), anemia (OR = 3.16, CI = 1.42–7.24), antepartum hemorrhage (OR = 2.18, CI = 1.22–3.92), fetal malpresentations (OR = 3.04, CI = 2.38–3.88), cephalopelvic disproportion (OR = 2.09, CI = 1.33–3.29), and fetal macrosomia (OR = 2.27, CI = 1.72–3.00) among the grand multiparae compared with multiparae.

Conclusion: The effects of these complications were minimized by good antenatal care.

Key words: Grand multiparity, obstetric performance, Kano, Nigeria

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Introduction

Pregnancy in grand multiparous women is viewed with anxiety, especially by obstetricians in developing countries working with inadequate facilities.[1,2] High parity is associated with serious consequences to the fetus, the mother, the family, and society.[1-6] The problem of grand multiparae in developing countries is compounded by a high prevalence of low socioeconomic status, poor female literacy, and social deprivation, as well as inadequate performance of family planning initiatives.[2] On the other hand, in developed countries with improved and optimal obstetric services, parity *per se* is no longer considered a significant risk for adverse obstetric and perinatal outcomes.[2,3]

Despite the government's population policies which favor the small family size,[7] high parity still remains a common feature of our obstetric practice in developing countries,[1-6] with an overall incidence of 10–30%, with higher rates in the Muslim countries, where there is a large-family norm and poor acceptance of family planning methods.[2]

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The International Safe Motherhood Conference which was convened in Nairobi, Kenya, in 1987, to address the appalling high maternal death rates in developing countries, identified grand multiparity as a definite risk, with a high score of 2 out of a maximum of 3, which depends on their potential impact on the outcome of pregnancy.[2]

The pregnancy outcomes among the grand multiparae depend on the level of obstetric care in the environment,[2,3,6] because it is known that in childbearing practice does not make perfect.[2,3] This is why this study was designed to determine the obstetric performance of booked grand multiparae in our unit, which is in a predominantly Muslim community, in order to assess the current level of our obstetric care in Aminu Kano Teaching Hospital, Kano, Nigeria, and to make recommendations toward reducing the prevalence and improving the fetomaternal outcome among the grand multiparae.

Materials and Methods

This prospective observational study was conducted in Aminu Kano Teaching Hospital, Kano, Nigeria, from January 1, 2002, to December 31, 2006, to review the antenatal complications and pregnancy outcomes among booked, grand mulitparous women (pregnancy after fifth delivery), who delivered in our labor ward. The other study group who were identify for comparative analysis were the booked mulitparae (parae 1– 4) who delivered immediately after a grand multipara. The reproductive performances of the two groups were comparatively studied.

The outcome measures were obstetric factors of maternal age and parity, antepartum hemorrhage, fetal malpresentations, and multiple pregnancy. Medical disorders were gestational diabetes, hypertension, anemia, and heart disease. Pregnancy outcomes measured were gestational age at delivery, birth weight, mode of delivery, postpartum hemorrhage, and maternal and perinatal mortality.

Diabetes mellitus in pregnancy was diagnosed in women with impaired glucose tolerance on an oral glucose tolerance test, while hypertension in pregnancy was defined as a blood pressure of 140/90 mmHg and above. Anemia in pregnancy was defined as a packed cell volume below 30%, while postpartum hemorrhage was loss of more than 500 ml of maternal blood after the delivery of the baby, or any amount of blood loss that would lead to deterioration in the maternal condition. Preterm birth was defined as delivery before 36 completed weeks of gestation, while low birth weight babies were those who weighed less than 2.5 kg at birth, and macrosomia was defined as birth weight of 4.0 kg or more.

Biophysical antenatal fetal monitoring was carried out. The active management of labor was used in the management of the parturients. Labor progress was monitored by partographs, and intrapartum continuous recording of both fetal heart tones and uterine contractions synchronously using a cardiotocograph machine where indicated. The active management of the third stage of labor was a routine. The data obtained were collated, and analysis was done using EPI Info, version 6.0 (CDC, Atlanta, GA, USA). A chi-square test was used for the comparison of the data for statistical significance. A *P*-value of less than 0.05 was taken as significant. The odds ratio (OR) and the 95% confidence interval (CI) were also determined.

Results

During the period of the study, there were 11,887 deliveries, and of these 1213 women (10.2%) were booked grand multiparae.

Table 1 shows the age distribution of the women. The age range among the grand multiparae was between 22 and 43 years, with a mode of 25–29 years and a mean age of 29.72 $\pm$ 2.09 years, as against an age range of 15–40 years, with a mode of 20–24 years and a mean age of 23.26 $\pm$ 2.14 years among the multigravida.

Table 2 shows the parity distribution of the women. The parity range among the grand multiparae was between 5 and 15, with a mode of 5–7 and a mean parity of 7.78 $\pm$ 0.63, as

Table 1: Age distribution of the women

Age (years)	Study group		Control group	
	Frequency	Percentage of frequency	Frequency	Percentage of frequency
15–19	–	–	309	25.5
20–24	64	5.3	498	41.1
25–29	589	48.6	241	19.7
30–34	422	34.8	122	10.1
35–39	106	8.7	42	3.5
>39	32	2.6	1	0.1
Total	1213	100	1213	100
Mean	29.72 + 2.09		23.26 + 2.14	

Table 2: Parity distribution of the women

Parity	Study group		Parity	Control group	
	Frequency	Percentage of frequency		Frequency	Percentage of frequency
5–7	514	42.4	1	329	27.1
8–10	414	34.1	2	414	34.1
11–13	276	22.8	3	262	21.6
14–16	9	0.7	4	208	17.2
Total	1213	100	Total	1213	100
Mean	7.78 + 0.63			2.29 + 0.15	

Table 3: Pregnancy complications

Complications	Grand multiparae n = 1213 (%)	Multiparae n = 1213 (%)	*P*-value	OR	CI
Gestational diabetes	135 (11.1)	12 (1.0)	<0.05	12.35	6.72–23.91
Hypertension in pregnancy	107 (8.8)	37 (3.1)	<0.05	3.07	2.07–4.59
Heart disease in pregnancy	12 (1.0)	3 (0.5)	<0.05	4.03	1.06–18.00
Anemia in pregnancy	28 (2.3)	9 (0.7)	<0.05	3.16	1.42–7.24
Antepartum hemorrhage	41 (3.4)	19 (1.6)	<0.05	2.18	1.22–3.92
Fetal malpresentations	282 (23.3)	110 (9.1)	<0.05	3.04	2.38–3.88
Multiple pregnancies	17 (1.4)	13 (1.1)	>0.05	1.31	0.6–2.87

Table 4: Pregnancy outcomes

Pregnancy outcomes	Grand multiparae n = 1213 (%)	Multiparae n = 1213 (%)	*P*-value	OR	CI
Preterm births	52 (4.3)	63 (5.2)	>0.05	0.82	0.55–1.21
Low birth weight	53 (4.4)	64 (5.3)	>0.05	0.82	0.55–1.21
Macrosomia	181 (14.9)	87 (7.2)	<0.05	2.27	1.72–3.00
Induction of labor	97 (8.0)	114 (9.4)	>0.05	0.84	0.63–1.12
Caesarean section	109 (9.0)	119 (9.8)	>0.05	0.91	0.68–1.20
Instrumental vaginal delivery	123 (10.1)	112 (9.2)	>0.05	1.11	0.84–1.47
Postpartum hemorrhage	82 (6.8)	98 (8.1)	>0.05	082	0.60–1.13
Cephalopelvic disproportion	65 (5.4)	32 (2.6)	<0.05	2.09	1.33–3.29
Perinatal mortality	21 (1.7)	18 (1.5)	>0.05	1.17	0.59–2.31

against a parity range of 1–4, with a mode of 2 and a mean parity of 2.29 $\pm$ 0.15 among the multiparae.

Table 3 summarizes the pregnancy complications, and shows that there was a higher prevalence of gestational diabetes mellitus (OR = 12.53, CI = 6.72–23.91), hypertension (OR = 3.07, CI = 2.07–4.59), heart disease (OR = 2.01, CI = 0.70–6.08), anemia (OR = 3.16, CI = 1.42–7.24), antepartum hemorrhage (OR = 2.18, CI = 1.22–3.97), fetal malpresentations (OR = 3.04, CI = 2.38–3.88) among the grand multiparae. However, multiple pregnancy did not show the statistically significant difference in prevalence between the two groups.

Table 4 compares the pregnancy outcomes in the grand multiparae and multiparae. It showed that only fetal macrosomia (OR = 2.27, CI = 1.72–3.00) and cephalopelvic disproportion (OR = 2.09, CI = 1.33–3.29) showed a significantly higher occurrence among the grand multiparae, while the other variables did not show any statistically significant difference in occurrence between the two groups. There was no maternal death in the two groups.

Discussion

The prevalence of 10.2% for booked grand multiparae in our study is similar to a report from United Arab Emirates[7] and Riyad,[8] which are predominantly Muslim communities like ours, but it is higher than the 2.0% reported from Lagos[3,5] and 6.1% from Ibadan[1] in South West Nigeria, which are cosmopolitan communities with a large Muslim and Christian population.[3] This may be because of the higher prevalence of early marriage, a large-family norm, and poor acceptance of modern family planning methods in Muslim communities.[2] Early marriage and poor acceptance of modern family planning methods could have accounted for the mean age in this study of 29.72 $\pm$ 2.09 years which is lower than 33.26 $\pm$ 1.8 years reported from Lagos where marriage is delayed.

The antenatal complications and pregnancy outcomes among the grand multiparae were compared with those of multiparae, because the multiparae have been reported to have the safest pregnancy outcome.[2,9,10]

Pregnancy complications were more prevalent among the grand multiparae in this study, probably because of an older maternal age, which predisposed them to medical disorders of pregnancy and abruptio placenta,[2-6] while high parity predisposed them to anemia, placenta previa, and fetal malpresentations.[2-6] Multiple pregnancy did not show any statistically significant difference in occurrence between the two groups as reported in some studies, where it was shown to be more frequent among older pregnant women and grand multiparae.[11] This was probably due to the younger age of our grand mulitparae because of early marriage and the relatively lower incidence of multiple pregnancy in our community in North-West Nigeria.[12]

Pregnancy outcomes in the two groups did not show any statistically significant difference except for the higher occurrence of fetal macrosomia and cephalopelvic disproportion among the grand multiparae, which differs from reports in earlier studies.[4] This was probably due to good antenatal care. The higher occurrence of fetal macrosomia and cephalopelvic disproportion among the grand multiparae was probably due to the increase in the fetal size with birth order,[13-16] and the higher prevalence of gestational diabetes among the grand multiparae.[13,15,16]

Grand multiparity is associated with a predominance of low socioeconomic status and poor literacy level,[2,9,10] which accounts for the delay in intervention and poor prognosis in the event of complications in this group.[2,8-10] These factors were minimized of by adequate counseling in the antenatal clinic to improve their awareness about the events of pregnancy and labor, and to encourage them to report early in the hospital in the event of any complication or labor. The financial burden on patients was taken care of by the social welfare service of our hospital, which encourages philanthropists to donate toward the care of indigent patients. These measures in addition to the provision of an efficient blood banking system, which encourages voluntary rather than remunerated donors and strongly discourages the purchase and sale of blood, have gone a long way to prevent delays in intervention and improve the fetomaternal outcome among our patients.

Conclusion

The combination of several factors, good antenatal care and delivery services, increased patient's awareness through adequate counseling, an efficient social welfare service, and an efficient blood banking system, have reduced the pregnancy risks of booked grand multiparae in our unit to be similar to that of women of lower parity.

Emphasis on qualitative antenatal care and hospital delivery, as well as female education, and acceptance of modern family planning methods to prevent grand multiparity should be intensified in our community, if Millennium Development Goals 4 and 5 are to be achieved.

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