ORIGINAL ARTICLE

Postpartum maternal morbidity in Jos, north-central Nigeria

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Abstract

Introduction: Postpartum maternal morbidity is a serious public health problem. Major acute and long-term obstetric morbidities affect the life and reproductive career of women.

Objective: To determine the incidence, pattern and associated factors of postpartum maternal morbidity in the Jos University Teaching Hospital (JUTH) and offer suggestions on various interventions to reduce this postpartum morbidity.

Materials and Methods: This was a 3-year prospective observational study at the JUTH between April 2005 and March 2008. All patients who delivered or were treated in the hospital for postpartum morbidity were recruited for the study.

Results: A total of 9056 women delivered, of which 246 (2.72%) were treated for postpartum morbidity. Most of the patients (32.9%) were between 25 and 29 years old. A majority of the women (58.5%) were of Parity 2 to 4. House officers and senior house officers supervised most (43.5%) of the deliveries. The most common postpartum maternal morbidity was primary postpartum hemorrhage (35.4%). This was followed by hypertensive disorders (24.8%) and genital tract sepsis (16.7%). There was a statistically significant relationship between accoucher and postpartum maternal morbidity.

Conclusion: The incidence of postpartum morbidity was high, with hemorrhage, hypertensive disorders and genital tract sepsis being common problems. It is hoped that supervision of deliveries by skilled medical personnel and active management of the third stage of labor will reduce the incidence of postpartum hemorrhage.

Key words: Hemorrhage, hypertensive disorders, maternal, morbidity, postpartum

Introduction

Maternal morbidity generally refers to complications that arise during pregnancy, delivery or the postpartum period.[1,2]

The World Health Organization defines the postpartum period or puerperium as beginning 1 h after the delivery of the placenta and continuing until 6 weeks (42 days) after the birth of the infant.[1]

Many of the postpartum complications leading to maternal morbidity arise during labor and delivery and in the first 1–2 weeks following delivery. Major acute obstetric morbidities include hemorrhage, sepsis and pregnancy-related hypertension. Long-term morbidities include uterine prolapse, vesicovaginal fistula, urinary incontinence, dyspareunia and infertility.[1]

In developing countries, pregnancy and complications from childbirth account for 18% of the diseases among females.[2] Of the 585,000 women who die each year during childbirth, over 98% are from the developing world.[3-5] Again, for each woman that dies, 10–15 others suffer different forms of serious morbidity.[6] About 40% of the pregnant Nigerian women experience pregnancy-related health problems during or after pregnancy and childbirth, with 15% estimated as suffering from serious or long-term complications.[7]

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Access this article online	
Quick Response Code:	**Website:** www.njcponline.com
	DOI: 10.4103/1119-3077.79238

Skilled attendants at birth and hygienic conditions during delivery can reduce the risk of maternal complications like infections in the postnatal period.

Although antenatal clinic attendance is expected to reduce the mortality and morbidity rates, it has been shown that women who have had an apparently normal antenatal period develop complications during labor, delivery and the puerperium, and some of them die.[8]

Current data on the extent of postpartum maternal morbidity in developing countries is extremely limited. These do not permit accurate measurements of the incidence and prevalence of the full spectrum of maternal morbidity.[9]

This study was therefore aimed to determine the types and determinants of maternal morbidity in Jos University Teaching Hospital (JUTH) and to proffer suggestions and interventions that will help obstetricians in reducing the incidence of the problem.

Materials and Methods

This study was carried out at the JUTH, Jos, Plateau State, Nigeria, from April 2005 to March 2008.

The hospital is a referral center for all the several existing general, cottage, and private hospitals in the state. It provides routine maternity and family planning services to the community.

This was a prospective study in which all women (irrespective of their booking status) who delivered in the hospital and developed postpartum morbidity or delivered outside the teaching hospital and developed complications and were referred to the teaching hospital for treatment were recruited. Necessary data were collected directly from the subjects as soon as they presented to the hospital or when their condition stabilized. The information collected included: age, occupation, ethnic group, educational status, religion, marital status, parity, booking status, mode of delivery, accoucher, postdelivery complication and duration of hospital stay. The data were analyzed and presented in a tabular format and compared using frequencies.

The EPI info statistical software (version 6.04) was used for data entry and analysis. In order to minimize inconsistent and illegal entries, the check option of the EPI info menu was used to program the data entry exercise for the descriptive aspects of the analysis and frequency distribution were generated for all the categorical variables.

The chi-square test was applied for the comparison of proportions and for evaluating associations of categorical variables in contingency tables. Statistical significance was said to be achieved where the associated P-value was ≤ 0.05.

Sample size
All the postdelivery morbidity cases within the study period were recruited and analyzed.

Limitations of the study
There was no uniform managing protocol as different teams managed different patients.

Some inaccuracies in the classification of certain morbidities may be expected due to the use of admission diagnoses.

Data collection did not extend to the medical wards. It is therefore not possible for us to ascertain whether or to what extent there are medical or surgical ward admissions of women in the late peurperium with obstetric conditions.

Results

A total of 9056 women delivered in the facility, of which 246 had postpartum morbidity (2.72%).

Table 1 shows the sociodemographic characteristics of the subjects. Most of the patients (32.9%) were aged between 25 and 29 years. About 43.1% had a primary level of education, while 29.7% and 7.3% had secondary and postsecondary education, respectively. About 19.9% of the patients did not have any formal education. A slightly above-average number of the patients (52.0%) were Muslims, whereas 47.6% were Christians. The remaining 0.4% of the patients were of other religious faiths. The ethnic group distribution showed that the Hausa/Fulani constituted 48.0% of the patients. The Berom constituted 11.8%, Igbo 8.9%, Mwaghavul 5.3%, Yoruba 4.1% and other ethnic groups 18.3%.

The booking status showed that 72.0% were booked patients while 28.0% were unbooked. Most (58.5%) of the patients were of parity 2 to 4. A majority (93.5%) of the patients had spontaneous vaginal delivery. About 6.1% had caesarean section and 0.4% had ventouse delivery.

The distribution of accouchers showed that the house officers/senior house officers, nursing officers/midwives, registrars and traditional birth attendants conducted about 43.5%, 28.9%, 13.8% and 8.5% of the deliveries, respectively. The senior registrars and consultants attended to only 2.8% of the deliveries, as shown in Table 2.

The most common morbidity was primary postpartum hemorrhage (35.4%). This was followed by hypertensive disorders (24.8%) and genital tract sepsis (16.7%). Others were abdominal wound dehiscence following caesarean section (4.5%), episiotomy breakdown (3.7%), puerperal

Table 1: Sociodemographic characteristics of the patients (n = 246)

	No.	%
Age in years		
≤19	19	7.7
20–24	58	23.6
25–29	81	32.9
30–34	50	20.3
35–39	26	10.6
40–44	8	3.3
>44	4	1.6
Educational level		
None	49	19.9
Primary	106	43.1
Secondary	73	29.7
Postsecondary	18	7.3
Occupation		
Housewife	97	39.4
Farming	75	30.5
Trading	27	11.0
Student	23	9.3
Civil servant	15	6.1
Others	9	3.7
Ethnic group		
Hausa/Fulani	118	48.0
Berom	29	11.8
Igbo	22	8.9
Mwaghavul	13	5.3
Yoruba	10	4.1
Afizere	6	2.4
Tarok	3	1.2
Others	45	18.3

Table 2: Distribution of patients by parity, mode of delivery and accoucher (n = 246)

	No.	%
Parity		
1	81	32.9
2–4	144	58.5
≥5	21	8.5
Mode of delivery		
Ventouse	1	0.4
Caesarean section	15	6.1
Spontaneous vaginal delivery	230	93.5
Accoucher		
House officer/SHO	107	43.5
Nursing officer/midwife	71	28.9
Registrar	34	13.8
Traditional birth attendant	21	8.5
Sen. reg./consultants	7	2.8
Medical officer	3	1.2
Others (CHO/CHEW)	3	1.2

SHO, Senior house officer; TBA, Traditional birth attendant; CHO, Community health officer; CHEW, Community health extension worker; Sen. Reg., Senior Registrar

Table 3: Distribution of patients by postpartum morbidity (n = 246)

	No.	%
Post-partum morbidity		
Postpartum hemorrhage	87	35.4
Hypertensive disorders	61	24.8
Genital tract sepsis	41	16.7
Postpartum psychosis	12	4.9
Wound dehiscence	11	4.5
Episiotomy breakdown	9	3.7
Puerperal pyrexia	9	3.7
Mastitis	3	1.2
Retained placenta	2	0.8
Others	11	4.5

Table 4: Distribution of patients by duration of hospital stay on admission (n = 246)

	No.	%
Duration (days)		
<1	11	4.5
1–7	197	80.1
8–14	31	12.6
15–21	6	2.4
≥22	1	0.4

psychosis (4.9%), puerperal pyrexia (3.7%), mastitis (1.6%), retained placenta (0.8%) and others (4.5%) [Table 3].

Most (80.1%) of the women stayed on admission in the hospital for <7 days. Only 0.4% had to stay on admission for more than 21 days. The treatment outcome was generally satisfactory [Table 4].

The relationship between accoucher and maternal morbidity is shown in Table 5. Table 6 shows that there was no statistically significant difference between booking status and the development of postpartum maternal morbidity.

Discussion

About 2.7% of the women had postpartum morbidity within the period of study in the maternity unit of the hospital. This is lower than the reported incidence in a study in Niamey, Niger Republic (6.45%), and higher than that of Scotland (0.38%).[10,11] This variation in incidence may be a reflection of the general level of development and that of maternal health care delivery services.

One-third of the patients were of the active reproductive age group, between 25 and 29 years of age. More than half of these women were having their second to fourth delivery. This is unlike a study in Dhaka, Bangladesh, where the frequency of the reported postpartum illness was significantly associated with both increasing maternal age and parity.[12]

Even though it has been shown that the absence of good

Accoucher	Episiotomy breakdown (%)	Genital sepsis (%)	Hemorrhage (%)	Hypertensive disorder (%)	Mastitis (%)	Wound dehiscence (%)	Postpartum psychosis (%)	Puerperal Pyrexia (%)	Retained placenta (%)	Others (%)
H/O	9 (100)	16 (39)	46 (52.9)	20 (32.8)	-	4 (36.4)	5 (41.7)	2 (22.2)	1 (50.0)	4 (36.4)
Med Off	-	1 (2.4)	1 (1.1)	-	-	1 (9.1)	-	-	-	-
MW/NO	-	13 (31.7)	22 (25.3)	21 (34.4)	-	-	5 (41.7)	4 (44.4)	1 (50.0)	5 (45.5)
REG	-	5 (12.2)	4 (4.6)	16 (26.2)	1 (33.3)	5 (45.5)	1 (8.3)	1 (11.1)	-	1 (9.1)
SNR/CONS	-	2 (4.9)	1 (1.1)	3 (4.9)	-	1 (9.1)	-	-	-	-
TBA	-	3 (7.3)	13 (11.9)	1 (1.6)	1 (33.3)	-	1 (8.3)	1 (11.1)	-	1 (9.1)
Others	-	1 (2.4)	-	-	1 (33.3)	-	-	1 (11.1)	-	-
Total	9	41	87	61	3	11	12	9	2	11

Table 5: Relationship between accoucher and postpartum maternal morbidity

Chi-square test = 106.1272, df = 54, Probability = 0.0001, H/O, House officer; Med off, Medical officer; MW/NO, Midwife/Nursing officer; REG, Registrar; SNR/CONS, Senior Registrar/Consultants; TBA, Traditional Birth Attendant

Booking status	Episiotomy breakdown (%)	Genital tract sepsis (%)	Hemorrhage (%)	Hypertensive disorders (%)	Mastitis (%)	Puerperal psychosis (%)	Puerperal pyrexia (%)	Retained placenta (%)	Wound dehiscence (%)	Others (%)
Booked	7 (77.8)	33 (80.5)	62 (71.3)	48 (78.7)	2 (66.7)	8 (66.7)	5 (55.6)	2 (1.1)	7 (63.6)	10 (90.9)
Unbooked	2 (22.2)	8 (19.5)	25 (28.7)	13 (21.3)	1 (33.3)	4 (33.3)	4 (44.4)	-	4 (36.4)	1 (9.1)

Table 6: Relationship between booking status and post-partum maternal morbidity

Chi-square test = 7.0218, df = 9, Probability = 0.6348, Wound dehiscence, Wound dehiscence following caesarean section

antenatal care and hospital delivery usually leads to a high incidence of maternal morbidity and mortality,[4,13] about two-thirds of the patients in this study were booked patients who had regular antenatal care in the hospital. It was shown that there was no statistical relationship between the booking status of patients and the postpartum maternal morbidity. This implies that most of the complications recorded developed in the course of labor and delivery.

The leading postpartum maternal morbidity in this study was primary postpartum hemorrhage. This was followed by hypertensive disorders of pregnancy and puerperal sepsis. This is similar to other findings in South Africa and Niger Republic.[10,14] It was reported that obstetric hemorrhage accounted for 50% of the events in Scotland.[11]

Other morbidity included wound dehiscence following caesarean section (4.5%). This was lesser than the findings in Maiduguri and slightly higher than the figures obtained in a similar study in Saudi Arabia.[15,16] The hygienic status of patients and that of the hospital environment, utilization of intraoperative antibiotics and surgical techniques of the surgeons could have accounted for these variations.

Postpartum psychosis is said to typically occur around the time of delivery, and affects <1% of the women after delivery.[17,18] However, in this study, postpartum psychosis affected 0.13% of all deliveries and accounted for 4.9% of women with postpartum complications. This may be because this is a tertiary institution where referral to the psychiatrist is the norm.

Current scientific evidence shows that routine episiotomy is not justified as it has no benefit for the mother or infant. It increases the need for perineal suturing and the risk of complications to the healing process at 7 days postpartum. It also produces unnecessary pain and discomfort, and has potentially harmful long-term effects.[19] In this study, recorded breakdown of episiotomies was as high as 3.7%.

A low incidence of puerperal pyrexia was recorded. This was unlike the findings of a study in a private specialist hospital in Illorin, North Central Nigeria, where an incidence as high as 56.1% was documented.[20] This disparity may be as a result of lower standards of medical practice in some private health centers.

Retained placenta is also associated with maternal morbidity and mortality. A study in Ibadan, South Western Nigeria, found that the incidence of retained placenta in scared uterus was 5.3% while that in unscarred uterus was 1.74%.[21] Even though the incidence of retained placenta is relatively low in this study (0.8%), these cases were encountered in deliveries that were supervised by house officers and midwives who might not have anticipated the possibility of these complications. Similarly, 52.9% of the cases of obstetric hemorrhage recorded in this study were from deliveries supervised by house officers and senior house officers. Moreover, there was a statistically significant relationship between postpartum maternal morbidity and accoucher.

A particularly striking finding in this study was the high risk of the Hausa/Fulani ethnic group for postpartum maternal morbidity. A study carried out earlier in Jos, North-Central Nigeria showed that more maternal deaths occurred in

this ethnic group.[22] The women in this ethnic group were mostly nonliterate and unbooked for antenatal care. This is probably a reflection of the high prevalence of nonliteracy among the women and low status accorded to women, including the practice of exclusion (purdah).[22]

It is expected that maternal mortality and morbidity will be drastically reduced if patients are managed in a well-equipped tertiary health center that is manned by qualified specialists. This is also the goal of an effective referral system.[23] From the findings in this study, this objective is not maximally or adequately achieved. It could also be fair to say that Urban African maternity care systems face problems as rapid population growth puts them under increasing pressure.[24] This notwithstanding, it is necessary to mention that health problems after childbirth should be anticipated and careful attention should be given to prevent them from occurring or reducing the severity of morbidity.[25]

Conclusion

The incidence of postpartum morbidity was high, with haemorrhage, hypertensive disorders and sepsis been the common problems. Given that many of the complications that led to postpartum maternal morbidity arise during labor and delivery, and that there was a statistical relationship between postpartum morbidity and accoucher, proper supervision should be given to parturients in order to minimize these complications. It is also necessary to reiterate the need for properly supervised labor and prompt use of oxytocics to prevent postpartum hemorrhage. Junior residents should be effectively supervised by senior colleagues.

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