

CAESAREAN MORBIDITY AND MORTALITY AT AMINU KANO TEACHING HOSPITAL, KANO- A TWO-YEAR REVIEW

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INTRODUCTION

Caesarean section is the delivery of a fetus through a surgical incision on the uterine wall after 28 weeks of gestation.¹ The origin of the term “caesarean section” is obscure but several different theories are promulgated.^{2, 3} Historians agree that the term “caesarean section” has nothing to do with the birth of Julius Caesar.^{2,3} The term probably was derived from 'Lex Caesarea' a decree in the Roman law (715 672 B.C) requiring that before burial of any woman dying in late pregnancy, the child be removed from the uterus.³ The term probably derives from the Latin verb “caedere” meaning to cut.³ An abdominal birth is termed partus caesareus.¹

Francis Rousset introduced the concept of performing an operation upon a living woman in the 16th century.³ He suggested several obstetric complications that were more horrific than the operation itself. Next, he sought to establish the feasibility of the operation by giving an account of seven females who survived. He also reported that another successful pregnancy may follow the operation.³

The first documented operation on a living patient, who died on the 25th post-operative day, was done in 1610.² The first successful caesarean section in the United States of America was done in 1794.² In early caesarean section, no sutures were placed in the uterus,³ and caesarean deliveries were associated with 100% maternal mortality, mostly due to infection or haemorrhage.³

The first major surgical advance in the technique was introduced by Porro (1876), in which the uterine fundus was amputated following the delivery of the fetus and placenta,

And the cervical stump marsupialized to the anterior abdominal wall.³ Max Scanger (1882) advocated performing a vertical incision on the uterus avoiding the lower uterine segment and recommended closing the uterus in two layers, using silver wire for the deep suture and fine silk for the superficial serosa.³ Kronig (1912) recommended transperitoneal vertical incision in the lower uterine segment.³ Munro Kerr (1926) recommended semilunar transverse lower uterine segment incision

ABSTRACT

Background: With the development of antibiotic therapy and modern blood-banking techniques, caesarean section has evolved into one of the safest and most commonly performed major operative procedures.

Objective: To determine the caesarean section rate, its morbidity and mortality in Aminu Kano Teaching Hospital, Kano.

Study Design: A two-year descriptive study from 1st January 2006 to 31st December 2007, in Aminu Kano Teaching Hospital, Kano. All patients that were delivered by caesarean section were included.

Results: There were 6,355 deliveries from 1st January 2006 to 31st December 2007, out of which 1,005 were by caesarean section, giving a caesarean section rate of 15.8%. Nine hundred and thirty eight (938) case notes were retrieved, out of which emergency caesarean sections were performed in 812 (86.6%) and elective caesarean sections in 126 (13.4%). Of the 938 patients, 434 (46.3%) were booked at Aminu Kano Teaching Hospital, Kano, 314 (33.5%) were booked elsewhere and 190 (20.2%) were unbooked.

The commonest indication was cephalo-pelvic disproportion/obstructed labour in 27.7% of the patients, then previous caesarean sections in 18.6%, hypertensive disorders in 14.8% and ante partum haemorrhage in 11.1% of the patients. Three hundred and six (33.6%) of the patients had at least one complication. The common complications were postpartum anaemia (21.3%), prolonged hospital stay (9.4%) and postpartum haemorrhage (4.5%). The caesarean section related mortality rate was 1.1% or 1066/100,000; 80% of which occurred in unbooked patients, 60% occurred in patients with eclampsia, 20% in patients with obstructed labour and the other 20% in patients with ante partum haemorrhage.

Conclusion: Morbidity and mortality from caesarean section is still high, due to the high number of unbooked patients and late referrals. Efforts should be made to educate our women about the importance of antenatal booking and early presentation in labour. Early referrals should be encouraged through continuing education programme for Doctors in private and government hospitals.

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with the curve pointing upward. This uterine incision is still used today.³

With the subsequent development of antibiotic therapy and modern blood-banking techniques, caesarean section has evolved into one of the safest and most commonly performed major operative procedures.³

Caesarean section has contributed immensely to improve obstetric care throughout the world.⁴ Like any other major abdominal surgery; caesarean section is not free of complication. These complications are major contributors to maternal morbidity and mortality.^{5,6}

The caesarean section rate vary widely both within and between countries.⁴ The national caesarean section rate for Great Britain and the United States of America have been reported as 12% and 14% respectively.⁷ While a caesarean section rate of 2% in Niger and Burkina Faso, and 14% from Kenya has been reported.⁸ In Nigeria, a caesarean section rates of 11.94-34.7% has been reported in some Teaching Hospitals.^{4,9,10}

Nigerian patients have a general aversion to caesarean section, because of the general belief among our women, that abdominal delivery is a reproductive failure.^{11,12} Recently with better education and increasing safety of caesarean delivery, the rate appears to be increasing in most Nigerian Hospitals.⁶ To sustain this increasing acceptability, caesarean section complications must be reduced to very minimum.^{5,6}

It has also been shown that caesarean section complications are major contributors to maternal mortality and morbidity,^{5,6} which are significantly related to the indication of the operation, characteristics of the patient, quality of the antenatal care and experience of the surgeon.

We therefore review caesarean section from 1st January 2006 to 31st December 2007 with a view to determine morbidities after caesarean

section.

It is hoped that the findings would help in reducing fetomternal

morbidity and mortality from caesarean section, and improve our chances of meeting the Millennium Development Goals 4 and 5.

TABLE 1: INDICATIONS FOR CAESAREAN SECTION/BOOKING STATUS

Indication	F(%)	BAKTH	BEW	Unbkd	X2	P=
CPD/Ob. Labour	260(27.7)	106(24.4)	104(23.4)	50(26.3)	0.13	0.71
Prev. C/Section	174(18.6)	140(32.3)	32(10.3)	2(1.1)	37.5	0.00
Hypertension	136(14.8)	30(6.9)	52(16.7)	54(28.4)	25.6	0.00
APH	104(11.1)	24(5.5)	42(13.5)	38(19.5)	14.5	0.00
Abn. Presentation	62(6.6)	30(6.9)	26(8.3)	6(3.2)	4.13	0.04
Fetal distress	52(5.5)	30(6.9)	12(3.8)	10(5.3)	0.62	0.43
Abnormal lie	48(5.1)	8(1.8)	16(5.1)	24(12.6)	23.7	0.00
Cord prolapse	24(2.5)	12(2.8)	8(2.6)	0(0)	5.1	0.02
BOH	24(2.5)	18(4.1)	6(1.9)	0(0)	6.1	0.01
Failed induction	18(1.9)	16(3.7)	2(0.6)	0(0)	4.6	0.03
Prev. Scar	12(1.3)	8(1.8)	2(0.6)	2(1.1)	0.1	0.75
Infertility	8(0.9)	8(1.8)	0(0)	0(0)	2.03	0.15

· F=frequency, BAKTH=booked in AKTH, BEW=booked elsewhere, Unbkd=unbooked, P=p-value

TABLE 2: COMPLICATIONS AFTER CAESAREAN SECTION

Complications	F (%)	BAKTH	BEW	UNBKD
Postpartum anaemia	200(21.3)	58(13.4)	78(24.9)	64(33.7)
Prolonged hospital stay	88(9.4)	18(4.1)	30(9.6)	40(21.1)
Postpartum haemorrhage	42(4.5)	18(4.1)	18(5.7)	6(3.2)
Wound infection	22(2.3)	6(1.4)	10(3.2)	6(3.2)
Genital sepsis	10(1.1)	4(1.2)	4(1.3)	2(1.1)
Maternal death	10(1.1)	0(0)	2(0.5)	8(4.2)
Anaesthetic complication	2(0.2)	2(0.5)	0(0)	0(0)
Nil complications	632(67.4)	346(79.7)	198(63.1)	86(45.3)
With complications	306(32.6)	88(20.3)	116(36.9)	104(54.7)

· Some patients had more than one complication.

· F=frequency, BAKTH=booked in AKTH, BEW=booked elsewhere, Unbkd=unbooked X2 = 209.23; P=0.0000.

TABLE 3: BLOOD TRANSFUSION Vs BOOKING STATUS

INDICATION	BAKTH	BEW	UNBKD	TOTAL
Placenta praevia	7	12	16	35
Abruption placentae	2	12	20	34
PPH	6	5	6	17
Anaemia	18	30	24	72
TOTAL f (%)	33(7.60%)	59(18.79%)	66(34.74%)	158(16.84%)

· F=frequency, BAKTH=booked in AKTH, BEW=booked elsewhere, Unbkd=unbooked

TABLE 4: COMPLICATION Vs TYPE OF OPERATION

Characteristics	Type of the operation	
	Emergency C/S (N=812)	Elective C/S (N= 126)
	F (%)	F (%)
Postpartum anaemia	188 (23.3)	10 (7.9)
Prolonged hospital stay (> 7 days)	82 (10.1)	6 (4.8)
Postpartum haemorrhage	36 (4.4)	6 (4.8)
Wound infection	20 (2.5)	2 (1.6)
Genital sepsis	8 (1)	2 (1.6)
Maternal death	10 (1.2)	0
Anaesthetic complication	0	2 (1.6)
Nil complication	522 (64.3)	110 (87.3)
With complication	290 (35.7)	16 (12.7)

÷ Anaemia: Haemoglobin concentration < 11g/dl

PPH: Blood loss > 1000mls after surgery

wound sepsis: Local wound erythema and suppuration

Prolonged hospital stay: Length of hospital stay > 7days.

Genital sepsis: Fever of 38 C on 2 consecutive occasions 24 hours after surgery, plus offensive lochia.

TABLE 5: CADRE OF THE SURGEON Vs COMPLICATION

COMPLICATION	CADRE OF THE SURGEON		
	REGISTRAR N=200	SENIOR REG. N=102	CONSULTANT N=4
	F (%)	F (%)	F (%)
Postpartum anaemia	138 (23.9)	58 (17.9)	2 (5.6)
Prolonged hospital stay	54 (9.3)	34 (10.5)	-
Postpartum haemorrhage	18 (3.1)	22 (6.8)	2 (5.6)
Wound infection	14 (2.4)	8 (2.5)	-
Maternal death	10 (1.7)	-	-
Genital sepsis	8 (1.4)	2 (0.6)	-
Anaesthetic complication	2 (0.3)	-	-

·some patients had > one complication

Discussion

The fact that caesarean section, a potent tool for averting life threatening problems of pregnancy and labour, is fraught with problems and dangers,^{11,12} was confirmed in this study with a caesarean complication rate of 32.6%. This rate of complication in this review is lower than 44.4% reported by Chama in Maiduguri,¹³ 49.9% reported by Akinwuntan in Ibadan,¹⁰ and 56.3%

reported by Kolawole,¹⁴ but higher than 14.6%, 15.6% and 16.2% reported by Ibekwe in Abakaliki,¹⁵ Ezeche O in Lagos⁹ and Jimoh in Illorin¹⁶ respectively.

These complications are common with emergency caesarean sections, among the unbooked patients and those that were operated by the Junior Registrars. These may be attributed to late presentations and compromised

maternal condition before the surgery. It might also be that in emergency caesarean sections, detailed precautions to reduce complications before and during surgery may have been waived in order to salvage the fetus or to prevent more serious maternal morbidity or death as observed by Ezechi in Lagos⁹. This high morbidity and mortality in emergency compared to elective in this study may be explained by the fact, that in emergency cases mostly the patients were referred and were operated by the junior registrars and the commonest indications in the referred patients in this study were obstructed labour, antepartum haemorrhage and hypertensive disorders which are known major causes of maternal morbidity and mortality in Kano¹⁷. The commonest complication was postpartum anaemia, this may be explained by the high prevalence of anaemia in our region¹⁸. Prolonged hospital stay (> 7 days) was another common complication, similar to findings by Ezechi in Lagos⁹ and Ibekwe in Abakaliki.¹⁵ This may be attributed to the time taken to correct anaemia in those patients with postpartum anaemia, blood pressure stabilization in those with hypertensive disorders and prolonged catheterization in those with prolonged obstructed labour.

Infectious morbidity of 3.4% in our study, is lower than 10.8% reported by Ezechi from Lagos⁹. This could be explained by the fact that, all our patients for caesarean section routinely received antibiotic therapy with amoxicillin plus clavulanic acid 1gm 8hrly and metronidazole 500mg 8hrly parenteral in the first 48-72hrs then changed to oral to complete 7day course of therapy. However, in those at an increased risk of infection, ceftriaxone was used instead of augmentin.

Transfusion rate of 16.84% in this study is comparable with 17.76% reported by Ezem in Owerri¹⁸. Majority (80.13%) that were transfused, were the referred patients, this could be explained by the

compromised maternal condition before the surgery and the high prevalence of anaemia in our region¹⁹ and late referral in patients with antepartum haemorrhage.

The caesarean section mortality rate of 1.1% or 1066/100,000 was higher than 0.51% and 0.01-0.04% reported by Ezechi in Lagos⁹ and Hickl²⁰ respectively, but comparable to 1% and 1107/100,000 reported by Chama in Maiduguri and Akinwuntan in Ibadan¹⁵ respectively. All the maternal deaths are in those with emergency caesarean section and mostly unbooked patients. In Kano, eclampsia, obstructed labour and antepartum haemorrhage are the major causes of maternal mortality,²¹ which was confirmed in this review where 60% of the maternal deaths occurred in those patients with eclampsia, 2 (20%) in those with obstructed labour and the other 2 (20%) in those patients with antepartum haemorrhage (abruption placentae).

A caesarean section rate of 15.8% in this review from our centre is within

the range of the rates in the country, with similar caesarean section reported by Mutahir²² in Jos and Ezem in Owerri,¹⁸ however, the caesarean section rate in this study is higher than 11.94% reported in Kaduna¹⁴, but lower than 34.7%, 34.6%, 25%, and 19.3% reported by Akinwuntan in Ibadan¹⁰, Ezechi in Lagos⁹, Onkwo in Enugu⁴ and Ibekwe in Abakaliki¹⁵ respectively. These differences are possibly attributed to the differences in the hospital catchment population, booking status of the patients, socio-economic status and referral status.

Emergency caesarean section rate of 86.6% in this review was comparable to 85.2% reported by Mutahir in Jos²¹ but higher than 74.3%, 76.5% and 77.9% reported by Adinma,²³ Ezem¹⁸ and Akinwuntan¹⁰ respectively.

As in several earlier reports^{5, 6, 11, 12, 13, 15}, cephalopelvic disproportion/obstructed labour was the commonest indication for caesarean section. Over diagnosis of cephalopelvic disproportion by residents may be the reason for this high figure, an observation also noted

by Ibekwe¹⁵ and Makinde.²³ This may also be related to childhood malnutrition and chronic infection with resultant impaired pelvic bone development.²⁴ Also the high prevalence of early marriage among our patients may explain the reason for this high figure in this study. This is similar to the findings in Kaduna and Zaria with similar socio-cultural background.^{24, 25}

In conclusion, the caesarean section rate in this review from our centre is within the range of the country's caesarean section rate, but the morbidity and mortality associated with it is high. In order to reduce these, effort should be made to reduce the rate of caesarean sections, which could be done by educating our women on the benefits of antenatal care and early presentations, and also encouraging early referral from the peripheral centres. Also increased supervision of the Junior Registrars by the senior officers in the patient's management, would no doubt reduce the rate of complications.

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