

PERINATAL OUTCOME AMONG UNBOOKED PATIENTS FOLLOWING CAESAREAN SECTION

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ABSTRACT

Context:

Caesarean section (Cs) is performed in the interest of the health of the fetus, mother or both. To identify areas of improvement, a review of fetal outcome of these surgeries is important.

Objective:

This study was to determine fetal outcomes among un-booked mothers requiring caesarean deliveries.

Study Design, Setting and Subjects:

A three-year retrospective study of fetal outcome of caesarean deliveries in un-booked mothers at the University of Port Harcourt Teaching Hospital.

Main Outcome Measures:

Perinatal asphyxia and perinatal deaths.

Results:

There were 863 Cs performed for 863 singleton births. A total of 841 were emergency Cs. Birth asphyxia occurred in 34.9% of the deliveries. The early neonatal death rate was 192.5/1000 live births and the fresh still birth rate was 319.8/1000 live births. The preterm deliveries and emergency Cs were significantly associated with higher rates of asphyxia and fresh still births ($p < 0.005$). Hypertensive diseases and antepartum haemorrhage as indications for Cs were also significantly associated with increased perinatal mortality (38.3% and 33.4%).

Those referred from TBA had the highest perinatal mortality (24.1%). Hypertensive disorders of pregnancy and antepartum haemorrhage were the indications for surgery most frequently associated with perinatal mortality.

Conclusion:

These high rates of adverse perinatal outcome with emergency Cs and prematurity are possibly due to type 1 delay and complications of preterm deliveries respectively and these two factors synergize when they occur together. We recommend enlightenment of TBAs towards early referrals and improvements in the neonatal units to reverse these trends.

Keywords: Caesarean section, perinatal mortality, birth asphyxia, un-booked mothers.

INTRODUCTION

Perinatal outcome among unbooked patients following caesarean section is often associated with adverse maternal and perinatal outcome¹. This is in agreement with our study and studies done locally and internationally^{1,2}. Caesarean section (Cs) is one of the commonly performed surgical procedures in obstetric and is certainly one of the oldest operations in surgery³. It is performed in the interest of fetal, maternal health or both and is as old as modern obstetrics^{1,3}. It is inherently associated with alterations of body physiology resulting from surgical procedure itself or from anaesthesia⁴. There may be altered physiology especially in emergency cases considering the primary indication for the surgery.

The objective of this report, covering a period of three years, is to study the association between Caesarean delivery on the one hand and the perinatal outcome (birth asphyxia, and perinatal mortality) on the other hand⁵ among un-booked subjects.

METHODS

The study was conducted at the University of Port Harcourt Teaching Hospital (UPTH), Nigeria. It has well staffed Obstetrics and Neonatal units with specialized perinatal care of women and their babies.

A review of Caesarean deliveries of 3 year period (2008 – 2010) was done to identify infants with moderate and severe degrees of birth asphyxia. Only singleton deliveries of gestational age equal to or greater than (\geq) 28 weeks were considered. Birth asphyxia was classified using the one-minute APGAR scores as follows – severe asphyxia: aggregate score of less than or equal to three (≤ 3) and moderate asphyxia: aggregate score of 4 or 5⁵. APGAR scoring is done routinely at UPTH by the midwife or doctor receiving the baby and is recorded both in the neonatal chart and in the delivery register. It is important to note that neonates with mild birth asphyxia were not included in the study because they had better outcomes than the moderate and severely asphyxiated babies.

The terms “live birth” and “early neonatal death” were defined according to the recommendations of the World Health Organization⁶. Data obtained from the records include APGAR scores at one and five minutes, gestational age, birth weight, fetal or neonatal outcome, underlying pre-pregnancy or perinatal or maternal illness, complications of pregnancy and labour as well as indications for Caesarean Section.

Statistical computations included cases of asphyxia (% of live births), still birth (per 1000 births), early neonatal death (per 1000 live births), overall perinatal mortality (per 1000 births). Analysis using Statistical Package for Social Sciences (SPSS) 20 involved comparison of findings with respect to gestational age, birth weight, booking status of the mother and degree of urgency of Caesarean Section (i.e elective or emergency) and place of referrals such as Traditional Birth Attendance, Church, maternity, Private clinics, Health centre, General Hospital and others. Odds

ratios and 95% confidence limits were calculated using standard formula. Confidence limit not embracing units were regarded as statistical significance at the 5% level ($P < 0.05$).

RESULTS

There were 863 singleton Caesarean deliveries during the study period from the study population; 587 were live births and 276 stillbirths. There were 302 cases of moderate and severe birth asphyxia among the 587 live births (34.9%). Mean age of mothers was 32 years \pm 4 years SD. Modal parity was 4. Patients with primary level of education were 518(60%) of the unbooked mothers, were as patients with secondary and tertiary levels of education were 259(30%) and 86(10%) respectively. The average birth weight was 2.8 Kg \pm 0.8 Kg SD. The CS rate among the unbooked mothers was 863/1751 of unbooked cases which is 49.3%. The Perinatal Mortality Rate (PMR) was 450.7 per 1000 live birth. Asphyxia rate was 347 per 1000 live birth. There were 7 cases with incomplete data on gestational age and indication of surgery, while 5 had no data on gestational age. Two of mothers signed against medical advice before the 7th post-operative day both with moderately asphyxiated babies.

All 152 preterm babies out of the 158 neonates had complete data sets were born by emergency Caesarean Section. Of this number, 147 (96.7%) were asphyxiated (mild birth asphyxia excluded for reasons stated in the methodology). This was significantly higher than the 332 (47.1%) observed among term babies. There were 276 still births among 863 singleton deliveries giving a rate of 319.8/1000 live birth. Hypertensive disease of pregnancy (383 per 1000 live birth) and antepartum haemorrhage (334 per 1000 live birth) were indications for emergency Caesarean Section associated with the highest still birth rates among unbooked subjects. Elective Caesarean Section fared better than those born by emergency surgery with an asphyxia rate of 18.2% versus 81.8%. Of the 863 Caesarean Section deliveries the unbooked mothers at the UPTH, 34.9% of

the babies experienced birth asphyxia while the perinatal mortality rate was 450.8/1000 live birth, compared with asphyxia rate and perinatal mortality rate of 8.7% and 80/1000 live birth among the booked mothers (OR 1.13, 95% CI).

Two indications for emergency Caesarean Section – Hypertensive diseases in pregnancy and Antepartum haemorrhage – accounted for 71.7% of perinatal mortality.

Mothers referred from TBAs, maternity and church were the most associated with perinatal mortality. This accounted for 66.8% of the perinatal deaths: Patients referred from TBAs accounted for 94 out of 389 of the perinatal deaths.

There were 113 early neonatal deaths (END) and 276 still births among 863 deliveries and 587 live births giving a perinatal mortality rate (PMR) of 450.8/1000 live births among the un-booked mothers. This was significantly higher than a figure of 37.76% for the booked mothers.

Table 1

Perinatal Deaths in Booked and Un-booked mothers with respect to indications for the Cs

Indications	Booked			Un-booked		
	Live birth	PNM		Live birth	PNM	
		No.	Rate (%)		No.	Rate
Hypertensive disease in pregnancy	8878	94	10.58	587	149	383
APH	---	58	6.50	---	130	334
Labour dystocia	---	31	3.50	---	55	141
Fetal distress	---	86	9.68	---	53	137
Others	---	67	7.50	---	2	5
Total	8878	336	37.76	587	389	1000

The above Table(1) shows that hypertensive disease of pregnancy and ante-partum haemorrhage were the leading factors associated with perinatal mortality in both the booked and un-booked subjects.

Table 2

Perinatal deaths in booked and un-booked mothers according to gestational maturity and birth weight.

Gestation	Number of Perinatal Death			
	Booked		Un-booked	
< 37 weeks	309	92%	243	62.5%
≥ 37 weeks	27	8%	146	37.5%
Birth weight				
< 2500g	318	95.6%	223	57.3%
≥ 2500g	18	5.4%	166	42.7%
Overall	336	100%	389	100%

Shows perinatal mortality in relation to gestation maturity and birth weight. Eight percent of perinatal deaths occurred in booked term babies compared to 37.5% of perinatal deaths in unbooked term babies [OR 6.0, 95% CI: 1.36 – 26.38).

Similarly, 18(5.4%) of perinatal deaths occurred in full- sized babies compared to 166(42.7%) of un-booked perinatal deaths [OR: 72 95%% (1.03 – 31.71).

Table 3

Perinatal death with birth asphyxia with respect to places of referral

	Perinatal Death	Rate	Birth Asphyxia	%
TBA	94	241	84	27.8
Maternity	90	231	67	22.2
Church	83	213	50	16.6
Private Clinic	43	110	34	11.3
Health centre	43	110	31	10.3
General Hospital	26	67	20	6.6
Others	17	44	16	5.2
Total	389		302	100

Those referred from Traditional Birth Attendance (TBA) had the highest Perinatal Mortality Rate (PMR) 241 per 1000 live birth.

DISCUSSION

In any institution, the rate of asphyxia will depend on the clinical state of the mothers presenting to its maternity services, the quality of perinatal care offered and the definition of asphyxia used in the cases under review⁵. In our study, we were interested in moderate and severe birth asphyxia (APGAR scores ≤ 5), being degrees of depression associated with profound perinatal defects⁵. The rate of asphyxia 34.9% herein reported is greater than 30.3% (APGAR score < 6) previously observed in Benin city⁷.

The PMR and CS rate were higher among the unbooked subjects compared to the booked subjects which was in agreement with other other Nigerian studies^{8,9}. This is very likely reflection of the demography and clinical state of the clientele as well as the intervention strategies in (referrals) the various centers.

There are restrictions in our acceptable policy, most of our patients are indigent and are likely to present late and are mismanaged in unorthodox or ill-equipped maternity centers.

This however, shows that improved perinatal outcome among these unbooked subjects could be achievable under improved socio-economic conditions and health-seeking attitudes in this country.

Of the 863 Caesarean Section done among unbooked subjects in the UPTH, the They PMR was ten times higher when compared to their booked counterparts. This is in keeping with earlier reports showing that emergency caesarean sections for patients fared better than unbooked ones^{10, 11}.

Some challenging tragic consequences were faced. Women had to battle not only with the physical pain of surgery but also the psychological trauma of dead babies¹². In addition, some of

the perinatal mortalities occurred in term full sized babies that could have been rescued by prompt intervention^{13,14}.

Unbooked emergencies have repeatedly posed problems as has been well documented in Nigerian studies⁸⁻¹⁰. Antepartum haemorrhage and hypertensive disorders in pregnancies are associated with adverse outcome among unbooked mothers¹⁴. Prompt referral to competent centers following diagnosis is a major contributory factors to good outcome. In addition, well-equipped neonatal services as well as dedicated and skilled manpower will help reduce negative outcome of mother and baby¹⁵.

CONCLUSION

These high rates of adverse perinatal outcome with emergency Cs and prematurity are possibly due to type 1 delay and complications of preterm deliveries respectively and these two factors synergize when they occur together. We recommend enlightenment of TBAs towards early referrals and improvements in the neonatal units to reverse these trends.

REFERENCES

1. Ugwu E, Ashimi A, Abubakar MY. Caesarean section and perinatal outcomes in a sub-urban tertiary hospital in North-West Nigeria. *Niger Med J*. 2015; 56(3): 180-184. Nigeria.
2. Nyengidiki TK, Allagoa DO. Rupture of the gravid uterus in a tertiary health facility in the Niger delta region of Nigeria: A 5 – year review. *Niger Med J* 2011; 52(4): 230-234.
3. Geidam AD, Audu BM, Kawuwa BM, ObedJY. Rising trend and indications of caesarean section at the university of Maiduguri teaching hospital, Nigeria. *Ann Afr Med* 2016;8: 127-32.
4. Daniel CN, Singh S. Caesarean delivery. An experience from a tertiary institution in north western Nigeria. *Niger J ClinPract* 2016; 19: 18-24.
5. Osei E, Agbemefle I, Kye-Duodu G, Binka FN. Linear Trends and seasonality of births and perinatal outcomes in Upper East Region, Ghana from 2010 to 2014. *BMC Pregnancy Child birth* 2016; 16:48.
6. Jehan I et al. Neonatal mortality, risk factors and causes: a prospective population-based cohort study in urban Pakistan. *Bulletin of the Who Health Organization* 2009; 87: 130-138.
7. Omene JA, DiejomaohFME. Analysis of 226 asphyxiated newborn infants at The University of Benin Teaching Hospital (1974-1976). *Nig J Paediatr*, 1978; 5: 25-29.
8. Ibekwe PC, Ugboma HU, Onyire N, Muoneke U. Perinatal mortality in southern Nigeria; less than half a decade to the Millenium Development Goals. *Ann Med Health Scie Res*. 2011; 1(2): 215-222.
9. Suleiman MB, Mokuolu OA. Perinatal Mortality in northwestern Nigerian City: a wake upcall. [Http:// dx do. Org /10.3389/ fped. 2014. 00105](http://dx.do.Org/10.3389/fped.2014.00105) (cited 01/05/2016).

10. Owolabi AT, Fatusi AO, Kuti O, Adeyemi AB, Faturoti SO, Obiajuwa PO. Maternal complications and perinatal outcomes in booked and unbooked Nigerian mothers. *Singapore Medical Journal* 2008; 49(7): 526-31.
11. Kalu CA, Omeora OIJ. Risk factors and perinatal outcome of umbilical cord prolapsed in Ebonyi State University Teaching Hospital, Abakiliki, Nigeria. *Niger J ClinPract* 2011; 14: 413-7.
12. Adewuya AO, Ologun YA, Ibigbami OS. Post-traumatic stress disorder after childbirth in Nigerian women: prevalence and risk factors. *BJOG* 2006; 133(3): 284-288.
13. Nwankwo TO, Aniebue UU, Ezenkwele E, Nwafor MI. Pregnancy outcome and factors affecting vaginal deliveries in twins at University of Nigeria Teaching Hospital. Enugu. *Niger J ClinPract* 2013; 16(4):490-5.
14. Igberase GO. Perinatal mortality in a rural referral hospital in Niger Delta, Nigeria. *Afr J Med Health* 2014; 41: 47-50.
15. [Http// ajcog2016agra.com/pdf/Final_Paper_A...](http://ajcog2016agra.com/pdf/Final_Paper_A...)(accessed 05/05/2016).