

Caesarean Section Rate in a Tertiary Hospital in Makurdi, North-Central Nigeria

Samuel K Hembah-Hilekaan^{1*}, Austin Ojabo¹ and Sarah Idogah²

¹Department of Obstetrics and Gynaecology, Benue State University Teaching Hospital, Makurdi, Benue State, Nigeria

²Department of Nursing Services, Benue State University Teaching Hospital, Makurdi, Benue State, Nigeria

*Corresponding author: Samuel K Hembah-Hilekaan, Department of Obstetrics and Gynaecology, Benue State University Teaching Hospital, Makurdi, Benue State, Nigeria, Tel: +234-8035722335; E-mail: hemhilsk@yahoo.com

Rec date: March 16, 2015 Acc date: April 13, 2015 Pub date: April 20, 2015

Copyright: © 2015 Hilekaan SKH, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Setting: Benue State University Teaching Hospital, Makurdi is a new tertiary health care institution which was established by an Act of the Benue State House of Assembly and started offering clinical services in 2012.

Background: There is widespread concern about the increasing proportion of births by caesarean section (CS) all over the world.

Objectives: This study is to determine the CS rate, the indications, the trend and possible reasons for the rate in a new and emerging tertiary hospital.

Patients and methods: The obstetric and theatre records of all caesarean deliveries that occurred at Benue State University Teaching Hospital, Makurdi, North Central Nigeria, between 1st September, 2002 and 31st August, 2014 were reviewed retrospectively. The total number of deliveries was obtained from labour ward.

Results: There were 636 deliveries, out of which 124 were caesarean sections, giving a CS rate of 19.3%. Majority of the patients (43.5%) who had CS were in the age group 26-30 years, with (82.3%) of the total patients included in this study were in the age range of 21-35 years, with a mean of 28.8. Of those who had CS (124), 8.9% were nulliparous while 78.2% were multiparous. 67.4% of the women were booked, while 14.7% were unbooked. Most of the patients (75.9%) delivered at term (37-42 weeks gestation), 17.9% delivered preterm and 6.3% had prolonged pregnancy. Cephalopelvic disproportion (CPD) was the commonest indication for CS (28.8%), followed by previous CS and fetal distress (14.4% and 12.3% respectively).

Conclusion: although the CS rate in the developed countries appears to have stabilized and is slowing down, that in developing countries is still high. The CS rate at BSUTH is very high. CPD was the singular most common factor responsible followed by repeat CS and foetal distress. Deliberate attempts to reduce the CS rate should be made.

Keywords: Caesarean section; Rate; Cephalopelvic disproportion; Tertiary hospital; Nigeria

Introduction

Caesarean section (CS) is one of the commonly performed surgical procedures in obstetrics and is certainly one of the oldest operations in surgery [1]. Caesarean section is a surgical operation to deliver a baby or babies by means of an incision through the abdomen and uterus [2]. The World Health Organization (WHO) stated in 1985 that; "there is no justification for any region to have CS rates higher than 10-15%" [3]. The recommended minimum CS rate at population level to avoid death and severe morbidity in the mother lays between 1-5%, according to WHO and others [4-6]. On the other hand, studies evaluating the association CS rates with neonatal death have shown outcome improvements up to a CS rate of 10% [7-9]. Several studies have shown an association between CS rate and maternal and infant mortality at population level in low income countries where large sectors of the population lack access to basic obstetric care [7,8,10]. The CS rate above a certain limit have not shown additional benefit for

the mother or the baby, and some studies have even shown that high CS rates could be linked to negative consequences in maternal and child health [7-11].

One of the most dramatic features of modern obstetrics is the relentless increase in the CS rate [12], which has been said to become a public health problem because of the increased health risk for both the mother and babies including the high cost of the procedure compared to vagina delivery. In developing countries, attributed factors include fear of litigation, liberal use of CS for breech presentation, detection of foetal distress by continuous electronic foetal monitoring among others [13]. In developing countries like Nigeria, some of the reasons may include high incidence of CPD, repeat CS for patients with previous CS, use of foetal heart rate abnormality for the diagnosis of foetal distress, a change in practice standards that reflects an increasing willingness by specialists to resort to CS, unbooked status of patients and late presentation when CS is the safest mode of and above all the referral nature of our hospitals where most of the operations take place. Some the general factors contributing to the increase are changes in the population of childbearing women, with more older women who have developed medical conditions and more women

with extra challenges of multiple birth [14]. The availability of safe anaesthesia, the fear of litigation and reports from mothers of pressure by health professionals to accept CS and use of the procedure for non-medical reasons including financial benefits may play a role in the ever rising incidence, even if minimally.

Researchers have also found out that CS rates have gone up for all categories of birthing women, regardless of age, the number of babies they are having, the extent of health problems, their race/ethnicity or the characteristics [15].

The CS rate at Benue State University Teaching Hospital (BSUTH) Makurdi, North-Central Nigeria has not been previously known. Our objective is therefore to determine the CS trend, rate and to identify some of the factors responsible.

Materials and Methods

This was a retrospective study of all CS deliveries at BSUTH, Makurdi, North-Central Nigeria between 1st September, 2012 and 31st August, 2014. BSUTH is a newly established Benue State government owned tertiary care hospital, located in Makurdi, North-Central Nigeria. Makurdi is an urban centre and the capital of Benue State located in North-Central, Nigeria. The hospital serves as a referral centre for secondary and primary care hospitals in the public and private sectors and covers a wide area in the region. The obstetric department has several consultants and registrars and serves as a postgraduate training centre for obstetrics and gynaecology. The theatre and labour ward registers of all patients who had CS at BSUTH were checked and their medical records retrieved and analyzed for age, parity, booking status and the indications for CS. Where there was more than one indication, they were analyzed separately. The total number of vagina deliveries was obtained from the labour ward Medical Records Department. Analysis of data was done using tables, simple percentages, means and range. The necessary approval of the institutional Ethics Committee for the work was obtained.

Limitations of the Study

The investigators have no control over the quality of data collected since it is retrospective in nature. This may have account for missing data and sometimes outright loss of some relevant information like pregnancy complications that could have also acted as determinants for CS in this study.

Results

There were 636 deliveries, out of which 124 were caesarean sections. The mean age of the 124 patients during the period of the study was 28.8 years with a range of 17- 44 years, and majority of the patients (43.5%) were in the age group of 26-30 years (Table 1), with (82.3%) of the total patients included in this study in the age range of 21-35 years. The mean gestational age at delivery was 38.4 weeks. Of those who had CS (124), 18.5% were nulliparous while 78.2% were multiparous, while the parity of the remaining (3.2%) was not documented. Majority (70.2%) of the women were booked, while 29.8% were unbooked. Most of the patients (75.9%) delivered at term (37-42 weeks gestation), 17.9% delivered preterm and 6.3% had prolonged pregnancy (Figure 1).

Age group (Years)	Frequency	Percent
≤20	9	7.3

21-25	22	17.7
26-30	54	43.5
31-35	26	21
36-40	11	8.9
≥41	1	0.8
Not stated	1	0.8
Parity		
0	23	18.5
1	44	35.5
2	21	16.9
3	13	10.5
4	11	8.9
≥5	8	6.5
Not stated	4	3.2
Booking status		
Unbooked	37	29.8
Booked elsewhere	10	8.1
Booked	77	62.1

Table 1: Socio-demographic characteristics of patients 2012-2014 (n=124).

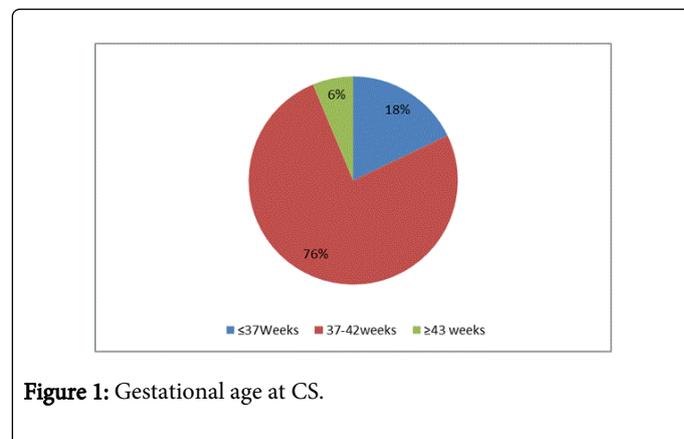


Figure 1: Gestational age at CS.

The CS rate fell marginally from 19.85% in the first year to about 19.25% in the second year (Table 2). Table 3 shows the frequency of the indications for caesarean section. Cephalopelvic disproportion (CPD) remained the commonest indication for CS accounting for 28.8% of all the patients; followed by previous (14.4%), fetal distress (12.3%), fetal malposition (7.5%), fetal macrosomia. Other indications for CS at BSUTH within the study period include: antepartum hemorrhage (5.5%), pre-eclampsia (3.4%), and eclampsia (2.1%) HIV/AIDS constitutes 2.7%. The least indications were elderly primigravida, previous myomectomy, chorioamnionitis and fetal malformations with each contributing 0.7%.

Type of Delivery	CS	VD	CS+VD	Yearly CS Rate%	Overall CS Rate%
Sept 2012- Aug. 2013	52	210	262	19.85	19.5
Sept. 2013-Aug. 2014	72	302	374	19.25	
Total	124	513	636		

Table 2: Yearly rate of cs and type of delivery, 2012-2013.

Indication	Frequency	Percent
Previous Caesarean Section	21	14.38
Cephalopelvic Disproportion	42	28.77
Fetal Distress	18	12.33
Fetal Malposition	11	7.53
Antepartum Hemorrhage	8	5.48
Fetal Macrosomia	8	5.48
Multiple pregnancy	7	4.79
HIV/AIDS	6	4.11
Hypertension in Pregnancy	5	3.42
Breech Presentation	4	2.74
Eclampsia	3	2.05
Failed Induction of labor	3	2.05
Intrauterine growth retardation	3	2.05
Florid genital warts	2	1.37
Cord Prolapse	1	0.68
Elderly Primigravida	1	0.68
Previous Myomectomy	1	0.68
Chorioamnionitis	1	0.68
Hydrocephalus	1	0.68
Total	146	100

Table 3: Indications for caesarean section.

Discussion

The CS rate recorded in this study was 19.5% which is outside the 5-10% recommended by WHO. It is also higher than 10.5% earlier recorded in a similar study in a secondary level care hospital in Makurdi [16], 10.4% in Awka [17] and 11.85% recorded in Maiduguri [13], but less than the rates of 20.8% to 34.5% recorded in some tertiary institutions in Nigeria [17-19]. It is however, similar to 18% reported from Jos, Northern Nigeria [20]. The highest reported rate in Nigeria was 35.9% at a tertiary hospital in Oshogbo in Southwestern Nigeria [21]. There is a high rate of reported CS in the developed

countries of the world. In the United States it is said to have leveled off at 32.8% in 2010 and 2011 [14,22], while that in England, Wales and Northern Ireland is 20% [21].

Although the CS rate is said to vary from region to region and from one country to another [16], the rate seen in our study is quite high especially when juxtaposed against a region where large family size is desired and idolized for various reasons ranging from care of the parents at old age, to increased source of income and higher production on the farm; all which are likely to worsen the future reproductive health problems of the mothers as well as the perinatal morbidity and mortality. It was however, observed that the yearly rate reduced from 19.9% in the first year to 19.3% in the second year, in spite of the reported increase of the CS rate worldwide. Whether this marginal decline will be sustained is not clear. But the high rate in this study may be as a result of the referral and high risk nature of our hospital in this region. This may explain why majority of the patients (59.7%) who had CS were booked. They could have been referred to the hospital for booking as high risk cases. Those who had unsatisfactory care in their previous deliveries including CS in other private and secondary level government hospitals may have also changed in their subsequent pregnancy and presented at BSUTH. This is further exemplified in the fact that 78.2% of the patients were multiparous with only 8.9% nulliparous (Table 1).

With regard to the indications for CS 142 multiple responses were reported. Of the total, the commonest indication was CPD which accounted for 28.8% of all the reasons reported for CS. This is at variance with studies from Eastern Nigeria [18,23], where previous CS has overtaken CPD as major indication for CS in the area, which may be explained by the improved standard of living and availability of health care and CS in the region. It is however in agreement with other reports in Nigeria. [18,24,25]. It has been estimated that 500 million women in developing countries are stunted as a result of malnutrition in childhood [17], resulting in inadequate development of the bony pelvis in many of them and subsequent reproductive health challenges during labour and delivery.

Majority of the women who had CS were in the age range 21- 35 years, which agrees with other reports [26,27]. This represents the period of highest reproductive performance and we believe the problems likely to result in operative abdominal delivery are more to be seen in this age bracket. Of those who had CS 78.2% were multiparas, which are contrary to reports from other researchers indicating a higher rate in the nulliparous [18,25]. This may have been due to the high parity nature of the population as well as the position of the hospital as a referral centre in the region which is likely to receive high risk cases including the repeat CS cases. Foetal distress also contributed 12.3% to the indications for CS and this may have been due to the reliance on intermittent auscultation and cardiotocographic monitoring, in the absence of foetal scalp electrodes for sampling in our hospital.

Apart from the desire for large family size and the high risk and referral nature of our hospital, some of the factors responsible for the increased need for CS and the high CS rate observed here, despite a strong aversion for this mode of delivery among women in our region may include; the high incidence of CPD due to malnutrition in the childhood years, low threshold for the procedure due to the absence of adequate labour monitoring devices such as foetal scalp electrodes for blood sampling and inadequate utilization of vagina birth after caesarean (VBAC). Others include inadequate counselling of women on future reproductive risks before the first CS, pressure by health personnel for women to accept CS and the side effects of common labour interventions such as labour induction.

To reduce CS rate in our hospital and similar institutions, deliberate effort should be made to improve on the facilities available and the employment and training of high caliber staff. The use of external cephalic version and the reduction of above mentioned high risk procedures may also help to reduce the CS rate in our hospitals. Some of the drawbacks of our study include the low volume of patients, the small duration of the study period, inadequate documentation and outright loss of some data (which may be resolved with the modern electronic health records) all which are common with similar studies.

Acknowledgements

We are highly grateful to Dr. Audu Onyemochi who carefully helped in the review of this paper, Mr. Sesugh koko for working on the statistical analysis, Mr. Tehemba Ihom and Terlumun Swende for their patience during the production of this manuscript. We appreciate the Consultants who permitted us the use of their patients for this work. To all those who helped in one way or the other during the course of this paper, we say a big thank you.

References

1. Kwawukume EY (2000) caesarean section In: Comprehensive Obstetrics in the tropics. Kwawukume EY, Emoveyan E, editors, Asante and Hittche Printing Press Limited 321-329.
2. Mutahir JT, Daru PH, Ujah IA (2005) Elective Caesarean Sections at Jos University Teaching Hospital. Trop J Obstet Gynaecol. 22: 39-41.
3. Gibbons L, Belizan JM, Laver JA, Betran AP, Merialdi M (2010) The Global Numbers and Costs of Additionally Needed and Unnecessary Caesarean Sections Performed Per Year; Overuse as a Barrier to Universal Coverage. World Health Report Background paper, No 30.
4. Dumont A, de Bernis L, Bouvier-Colle MH, Bréart G; MOMA study group (2001) Caesarean section rate for maternal indication in sub-Saharan Africa: a systematic review. Lancet 358: 1328-1333.
5. Ronsmans C, Van Damme W, Filippi V, Pittrof R (2002) Need for caesarean sections in west Africa. Lancet 359: 974.
6. De Brouwere V, Dubourg D, Richard F, Van Lerberghe W (2002) Need for caesarean sections in west Africa. Lancet 359: 974-975.
7. Betrán AP, Merialdi M, Lauer JA, Bing-Shun W, Thomas J, et al. (2007) Rates of caesarean section: analysis of global, regional and national estimates. Paediatr Perinat Epidemiol 21: 98-113.
8. Althabe F, Sosa C, Belizán JM, Gibbons L, Jacquerioz F, et al. (2006) Caesarean section rates and maternal and neonatal mortality in low-, medium-, and high-income countries: an ecological study. Birth 33: 270-277.
9. Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, et al. (2006) Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. Lancet 367: 1819-1829.
10. Ronsmans C, Holtz S, Stanton C (2006) Socioeconomic differentials in caesarean rates in developing countries: a retrospective analysis. Lancet 368: 1516-1523.
11. Belizán JM, Althabe F, Cafferata ML (2007) Health consequences of the increasing caesarean section rates. Epidemiology 18: 485-486.
12. Turner MJ (1997) Delivery after one previous cesarean section. Am J Obstet Gynecol 176: 741-744.
13. Geidam AD, Audu BM, Kawuwa BM, Obed JY (2009) Rising trend and indications of caesarean section at the university of Maiduguri teaching hospital, Nigeria. Ann Afr Med 8: 127-132.
14. Childbirth Connection Why is the National US Caesarean Section Rate so high? 2012
15. Declercq E, Menacker F, Macdorman M (2006) Maternal risk profiles and the primary caesarean rate in the United States, 1991-2002. Am J Public Health 96: 867-872.
16. Swende TZ, Agida ET, Jogo AA (2007) Elective caesarean section at the Federal Medical Centre Makurdi, north central Nigeria. Niger J Med 16: 372-374.
17. Ikeako IC, Nwajiaku I, Ezegwui Hu (2009) Caesarean section in a Secondary Health Hospital in Awka, Nigeria. Niger Med J. 50: 64-67
18. Okezie AO, Oyefara B, Chigbu CO (2007) A 4-year analysis of caesarean delivery in a Nigerian teaching hospital: one-quarter of babies born surgically. J Obstet Gynaecol 27: 470-474.
19. Igbere GO, Ebeigbe PN, Andrew BO (2009) High caesarean section rate: a ten year experience in a tertiary hospital in the Niger Delta, Nigeria. Niger J Clin Pract 12: 294-297.
20. Aisien AO, Lawson JO, Adebayo AA (2002) A five year appraisal of caesarean section in a northern Nigeria university teaching hospital. Niger Postgrad Med J 9: 146-150.
21. Adekanle DA, Adeyemi As, Fasanu AO (2013) Caesarean Section at a tertiary institution in Southwestern Nigeria- A 6-year audit. Open Journal of Obstetrics and Gynecology 3: 357-361
22. Hamilton BE, Martin JA, Ventura SJ (2012) Births: Preliminary data for 2011. Natl Vital stat Rep 61: 1-19.
23. Okafor CI, Onwosulu DN (2006) Rising caesarean section rate: Any hope for decline? NAUTH Nnewi experience. Nigerian Medical Journal 47: 38-40
24. Iyaiya MA, Aboyeji PA (2001) Caesarean delivery: The Trend over a Ten year Period at Ilorin, Niheria. Nigerian Journal of Surgical Research 3: 11-17
25. Efetie RE, Umezulike AC, Agboghroma CO (2006) caesarean Section at the National Hospital, Abuja. 1999-2001 ANMINS 3: 34-39
26. Okonta PI, Oforide VO, Okogbenin SA (2003) Caesarean Section at the University of Benin Teaching Hospital Revisited. Trop J Obstet Gynaecol 20: 63-66
27. Bala S, Alih B, Nwanmut DD, Bako EA, Mustapha SS (1999) Caesarean section at the Nigerian National Petroleum Corporation Industries Clinic, Kaduna, Nigeria. Orient J Med 11: 39-42.