Primary Caesarean Deliveries in a Private Hospital in Lagos

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Abstract

Context: Primary caesarean section increases the chances of subsequent operative delivery with its attendant problems. It is necessary to frequently review the indications for primary section in order to reduce rates.
Objective: To examine the indications for primary caesarean section.
Study Design, Setting and Subjects: A descriptive, fifteen-year report (1983 through 1997) of primary caesarean section from a private hospital in Lagos, Nigeria.
Main Outcome Measures: Primary caesarean section rates in nulliparae and multiparae.
Results: The overall primary caesarean section rate was 19.6%. It was higher for nulliparae than for previously parous women (32.0% Vs 11.5%, $p < 0.0001$) with cephalopelvic disproportion and poor progress in labour accounting for 72.2% of the difference in rates. About 90% and 80% of sections in nulliparae and multiparae respectively, were emergencies; cephalopelvic disproportion and poorly progressing labour accounted for two-thirds and one-half of each subgroup respectively. Fetal malpresentation was the dominant indication for elective surgery in nulliparae (59.6%) and multiparae (32.6%). The incidence rates of cephalopelvic disproportion, failure to progress in labour, severe hypertension and fetal distress were all higher in nulliparae than in multiparae. but it was the reverse with antepartum haemorrhage
Conclusions and Recommendations: Primary caesarean section is commoner in nulliparae than multiparae probably because previous successful vaginal delivery encourages more patient trial of labour in the latter group. A critical, individualised evaluation of cases of poor progress in labour is advocated to effect a decline in the incidence of this indication for surgery.

Key Words: Primary Caesarean Section, Cephalopelvic Disproportion, Malpresentation. [Trop J Obstet Gynaecol, 2004; 21:156-159]

Introduction

Primary caesarean section is of serious import because it significantly shapes the obstetric future of the parturient, more so for nulliparae than for the parous woman with a previous experience of vaginal delivery. The presence of a uterine scar increases the chances of caesarean section (CS) in the next pregnancy, sometimes as much as four-fold.[1] Considering the associated increase in maternal and perinatal morbidity[2], the extra cost and the aversion shown by most Nigerian mothers for abdominal delivery[3], a regular review of the reasons for the very first CS is prudent. Despite the plenitude of studies of CS in Nigeria, very few provide details on primary procedures and extremely few are entirely devoted to primary CS. Those few are mostly more than two decades old and have emanated from tertiary teaching institutions [4, 5]. Also, the emphasis has often been on the relative contribution of various indications for CS to overall caesarean deliveries. However, it is more informative to examine the frequency of encountering problems leading to caesarean section as a fraction of the overall parturient population. Such an approach is superior in terms of detecting trends in true incidence rates. To our knowledge, there have been no previous Nigerian publications using this approach, neither have there been previous reports of primary CS from private hospitals with their peculiar clientele. The aim of this study is to examine the indications for primary CS over a 15-year period in a multi-disciplinary, private hospital in Lagos.

Subjects and Methods.

The study involved a retrospective review of caesarean deliveries over a fifteen-year period (1983 to 1997) at the Havana Specialist Hospital (HSH), Lagos, Nigeria. The study period was subdivided into three five-year intervals: 1983-1987 (period A), 1988-1992 (period B) and 1993-1997 (period C). The hospital is an 80-bed multidisciplinary, proprietary health facility in Nigeria's foremost metropolitan city. It offers obstetric and neonatal services supervised by qualified consultant staff. Consultant obstetricians conduct all high-risk deliveries and more than 90% of 'normal' deliveries. There are no facilities for electronic foetal monitoring or foetal scalp-blood sampling. The clientele is drawn mostly from the upper socio-economic strata of society. Antenatal and delivery records were examined and parturients with singleton pregnancies and no previous caesarean delivery were selected for analysis. The following data were extracted: maternal parity, previous obstetric history, booked status, indication for CS and type of CS (elective or emergency).

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Data were analysed with respect to the following groups of parturients: nulliparous women and parous women undergoing primary CS. Statistical comparison involved calculation of odds ratios with 95% confidence limits. Where confidence limits did not embrace unity (the integer '1'), the odds ratio was accepted as statistically significant at the 5% level ($p < 0.05$).

Results

During the study period, there were 4290 deliveries 1140 (26.2%) of which were by caesarean section. Of the 1140 caesarean deliveries, 737 (64.6%) were primary procedures. The primary CS rate was thus, 19.6% for the 3757 women with no prior history of CS. Four hundred and seventy eight of the 737 primary CS were among 1495 nulliparous women giving a rate of 32.0%. This was significantly higher that the corresponding rate of 11.5% recorded for 259 cases among 2262 parous women with no previous history of CS (Odds ratio = 3.63, 95% confidence interval = 3.06 to 4.32, $p < 0.0001$).

Table 1 shows the five-yearly, background data of caesarean delivery in nulliparous women.

Table 1:
Five-Yearly Primary CS Rates among nulliparous women.

	1983-1987	*1988-1992*	*1993-1997*	*OR*	*95% CI*	*P-value*
Nulliparae (CS)	17(45)	579(171)	744(262)			
CS rate %	26.2	29.5	35.2	1.53	1.04-2.26	**0.02**
Nulliparous CS/ All CS %	42.1	41.1	42.5	1.02	0.66-1.57	0.94
Nulliparous CS/ All deliveries %	8.3	9.6	13.4	1.70	1.21-2.41	**0.001**
All nulliparae/ All deliveries %	31.7	32.4	37.9	1.32	1.07-1.62	**0.008**
Total deliveries (CS*)	542(107)		1787(416)		744(617)	
Overall CS rate	19.7	23.3	31.5			

CS = caesarean section

* Includes eight parous subjects delivered by CS whose records did not show whether they had a history of previous section

Comparison is between the time intervals 1983-1987 and 1993-1997

There was a rise in primary CS rates between the first and third time subdivisions of the study period. Significant increases were noted in the proportion of total deliveries accounted for by CS in nulliparae and also in the proportion of total deliveries accounted for by nulliparous women irrespective of mode of delivery.

The fraction of all CS made up by CS in nulliparae was however fairly constant during the study period. The primary CS rate in parous women experienced a 4.8% rise between the first and third time subdivisions (Table 2). Contrary to the finding in nulliparaae, the proportion of all deliveries accounted for by parous women showed a 13.4% fall ($p < 0.0001$).

Table 2: Five-Yearly Primary CS rates among parous women with no prior caesarean section.

	1983-1987	*1988 -1992*	*1993-1997*	*OR*	*95% CI*	*p-value*
Multiparae* (CS)	322(25)	1038(120)	902 (114)			
CS rate %	7.8	11.6	12.6	1.72	1.07-2.78	**0.02**
Multiparous 1^0CS/ All CS %	23.4	28.8	18.5	1.35	0.80-2.26	0.24
Multiparous 1^0 CS/ All deliveries %	4.6	6.7	5.8	1.28	0.80-2.04	0.28
All Multiparae*/ All deliveries %	59.4	58.1	46.0	1.72	1.41-2.09	**<0.0001**
Total deliveries (CS*)	542(107)	1787(416)	744 (617)			
Overall CS rate	19.7	23.3	31.5			

* = parous women who have not previously undergone caesarean delivery.

CS = caesarean section, 1^0 CS = primary caesarean section
history of previous section

* Includes eight parous subjects delivered by CS whose records did not show whether they had a Comparison is between the time intervals 1983-1987-1997 and 1992

The incidence rates of the various indications for CS were compared between nulliparous and multiparous women in Table 3.

Table 3:
Comparison of incidence rates of the various indications for caesarean section in nulliparous and multiparous women

	Nulliparae n =1495		**Multiparae n = 2262**				
Indication for CS	**no**	**rate %**	**no**	**rate %**	**OR**	**CI**	**p-value**
CPD	180	12.04	79	3.49	3.78	2.855-02	**< 0.00001**
Poor progress	113	7.55	30	1.33	6.08	3.98-9.35	**< 0.00001**
Mal-presentation	53	3.55	38	1.68	***		
Hypertension	50	3.34	20	0.88	3.88	2.24-6.77	**< 0.00001**
Fetal distress	42	2.81	25	1.11	2.59	1.53-4.39	**0.0001**
APH+	15	1.00	30	1.33	0.76	0.39-1.46	**0.3777**
Miscellaneous	12	0.80	20	0.88			
Insufficient data	13	0.8 7	17	0.75			

CS = caesarean section, CPD = cephalopelvic disproportion, APH = antepartum haemorrhage

\+ Includes cases of placenta praevia delivered by elective caesarean section

*** Inappropriate for comparison: Caesarean section was uniformly performed for breech

presentation in nulliparae while multiparae with uncomplicated breech Presentation were allowed a trial of labour.

It was considered inappropriate to conduct this comparison in the case of malpresentation because of the policy bias in handling such cases: caesarean section was uniformly performed for breech presentation in nulliparae while multiparae with uncomplicated breech

Presentation were allowed a trial of labour. Cephalopelvic disproportion, poor progress in labour and fetal malpresentation were the leading indications for CS in both subgroups. With the exception of antepartum haemorrhage/placenta praevia, the incidence rates of other specified indications for CS was higher in nulliparous than multiparous women.

Approximately 90% (429/478) of CS in nulliparae and 80% (209/259) of primary section in multiparae were emergency procedures. The indications for elective CS are shown in Table 4 with the dominant reason for primary surgery being malpresentation.

Table 4: Indications For Elective Caesarean Section.

	Para 0 *No (%)*	*Para1(+)* *No (%)*
Malpresentation	28 (59.6)	14 (32.6)
Placenta praevia	5 (10.6)	9 (20.9)
Hypertension	4 (8.5)	1 (2.3)
Cephalopelvic disproportion	3 (6.4)	2 (4.7)
Poor obstetric history	2 (4.3)	10 (23.3)
Miscellaneous	5 (10.6)	7 (16.3)
Total	47 (100.0)	43 (100.0)

With respect to emergency CS, cephalopelvic disproportion and poor progress in labour together accounted for more than half of the cases in parous women and two- thirds of cases in nulliparae. In nine cases, it was not known whether the sections were done as elective or emergency procedures (Table 5).

Table 5:
Indications For Emergency Caesarean Section.

	Para 0		**Para 1(+)**	
	no (%)	**A/B**	**no (%)**	**A/B**
CPD	177(4 1.2)	149/28	77 (36.8)	67/10
Poor progress	113(26.3)	96/17	30 (14.4)	25/5
Fetal distress	42(9.8)	37/5	25 (12.0)	21/4
Hypertension	46(10.7)	40/6	19 (9.1)	17/2
Malpresentation	25(5.8)	13/12	24 (11.5)	17/7
APH	10(2.3)	8/2	21 (1 0.0)	11/10
Miscellaneous	5(1.2)	3/2	3 (1.4)	1/2
Insufficient data	11(2.6)	9/2	10 (4.8)	5/5
Total	429(100.0)	355/74	209 (100.0)	164/45

Column A/B = Booked / Non-booked deliveries
CPD = cephalopelvic disproportion
APH = antepartum haemorrhage.

Discussion

The caesarean section rate (CSR) for nulliparae in our series showed a rising trend from, 26.2% to 35.2%, during the 15-year study period. The figure for the last five years of the period was quite high (35.2%) but comparable to 31.5% reported from Benin-City, Nigeria[6]. Recent studies from the US and UK found lower rates of 19.5%[7] and 22.5%[1] respectively. Similar results were noted with respect to primary CSR in multiparae with a rise in rates from 7.8% to 12.6%, figures higher than 5.6% and 6.9% observed in Scotland.[1,8]

The contribution of CS in nulliparae to overall CSR (about 42%) was fairly stable during the 15 years of study, lower than 50 to 55% found in two recent Scottish studies[1,8] but much higher than 18.3% reported from Ibadan, Nigeria[4] about 30 years ago. On the other hand, the contribution of primary CS in multiparae to overall CSR fell within the narrow range of 18% to 26% in series from Ibadan[4], Ife[9] and Scotland[1].

The contribution of elective CS to overall CS in nulliparae was less than 10% both in our series and in a study from Benin, Nigeria[6] but more than 20% in Scotland[1,8]. This finding was duplicated for primary CS in multiparae with our figure being less than half that in the Scottish series[1,8] (17.1% Vs 38.6%). It reflects the overall finding in other Nigerian studies that elective CS represents at most 14% to 21% of overall CS rates.[5,9,10]. The obvious corollary is that emergency resort to CS is far more frequently encountered in Nigerian series than in Scotland. The prima facie implication is that trial of labour is practiced more frequently in the Nigerian centers, which also on face value would appear impressive. But the question must be asked as to whether we are allowing too many patients who should have been scheduled for elective surgery to attempt vaginal delivery.

Two-thirds of emergency CS in nulliparae was done for cephalopelvic disproportion (CPD) or poor progress in labour (PPL). CPD is an absolute indication for CS and considering that elective CS has better maternal and neonatal outcome, reliable antenatal prediction of CPD would be of great obstetric help. This may not however, be altogether successful in the light of the average Nigerian woman's aversion for CS even in the direst circumstances.

Reduction in the incidence of CPD with respect to total births should be accompanied by lower CSR. True CPD is now rare in developed countries but continues to be a leading indication for CS in Nigeria and the third world.[3,11] Poor childhood nutrition and anthropological factors have been advanced as explanations for the persistence of contracted pelvis in Africans.[12,13] Something can and should be done about poor childhood nutrition but anthropological factors will remain. The other arm of the CPD problem is fetal size. Secular trends dictate that mean fetal size in Nigeria will continue to increase for some time. If this progresses too fast, it may outweigh the advantages gained in improved maternal nutrition, and CPD would remain relevant for quite some time.

the average birthweight at term is about 3500g.

The situation with poor progress in labour is somewhat different. It is a leading indication for CS, not only in Nigeria but also in the UK[1] and US[14]. Wareham[15] noted that the absence of precise criteria for the diagnosis of dystocia makes it an important factor in the indiscriminate recourse to CS. Porreco[16] referred to hasty recourse to CS as 'failure to wait' rather than 'failure to progress'. In the UK and US, the lack of patience with slowly progressing labour is often blamed on the fear of litigation should something go wrong while waiting.[17, 18] This fear is not a major factor in Nigeria (not yet). However, the extent to which previous unfortunate or near unfortunate obstetric events affect the attitude the obstetrician is difficult to quantify. Also not quantifiable is the role of lack of life support facilities for a baby who may become compromised while 'waiting'. So, even though there is not as much pressure to avoid litigation, the need to avert disaster using a readily available and safe procedure can be quite compelling.

Another reason for not 'waiting' is probably the lack of sophisticated fetal and labour monitoring devices like fetal scalp sampling or, cardiotocography. Also, effective obstetric analgesia is rarely practised. It is conceivable therefore that in cases with prolonged latent phase of labour, 'maternal distress may force a decision for surgical intervention. This is, therefore, one area in which attention should be directed if we are to reduce overall CS rates.

The calculation of incidence rates of various indications for CS enabled us to know how commonly these factors occurred in our obstetric population and we would recommend such analysis for future studies. For instance, we can comment that the incidence of malpresentation in our nulliparous population was lower than in Benin-City[6] (3.6% Vs 8.3%). This information would have been lost if analysis was limited to merely stating the relative contributions of that factor to overall CS as was the case in earlier studies.

The fact that CPD and poor progress in labour explained 72.2% of the difference in primary CS rates between nulliparae and parous women brings these two indications for surgery into focus. In conditions of slight departure from the normal course of labour, caesarean intervention is less likely to be considered in parous women with previous successful vaginal delivery than in "untested" nulliparae. This is probably the explanation for the six-fold higher incidence of poor progress in labour as an indication for CS in the latter group of women. With respect to CPD which is a recurrent condition, multiparae at risk would very likely have had a previous experience and would therefore be undergoing repeat rather than primary CS.

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