

Caesarean section and birth weight at Korle Bu Teaching Hospital – preliminary report

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Summary

Objective: This preliminary retrospective survey was done to find out whether the indications for Caesarean Section had any bearing on the birth weight.

Method: The foetal outcome for 673 parturients who delivered at the Korle Bu Teaching Hospital between September 1, 1998 and December 31, 1998 was analysed.

Result: Caesarean section done for cephalopelvic disproportion and for 2 or more previous sections yielded the highest mean birth weight ($3.43\text{kg} \pm 0.02\text{kg}$) and the best foetal outcome. Hypertensive disorders yielded the lowest mean birth weight ($1.8\text{kg} \pm 0.3\text{kg}$) and poorest foetal outcome. The mean parity and age of the parturients were similarly distributed.

Conclusion: The birth weights appeared to vary with the indications for Caesarean section. Confounding factors such as the gestational age, parity and age of the parturients need to be controlled in a prospective study in future. Good antenatal supervision could improve on the birth weights.

Keywords: Caesarean section, Birth weight, Korle-Bu.

Résumé

Objectif Ce sondage rétrospectif et préliminaire a été fait pour vérifier si les indications de césarienne avait un rapport sur le poids de naissance.

Méthode Le résultat foetal pour 673 parturients qui ont donné naissance à Korle-Bu- Teaching Hospital entre le 1 septembre 1998 et le 31 décembre 1998 a été analysé.

Resultat La césarienne faite pour la disproportion de cephalopelvien et pour deux ou plus d'opérations précédentes ont produit le moyen de poids de naissance le plus haut ($3.43\text{kg} \pm 0.2\text{kg}$) et le meilleur résultat foetal.

Les déordres hypertensifs ont produit le moyen de poids de naissance les moins bas ($1.8\text{kg} \pm 0.3\text{kg}$) et le résultat foetal le plus pauvre. Les moyens d'égalité et d'âge des parturients ont été également distribués.

Conclusion Les poids de naissance semblent varier avec les indications pour la césarienne.

Les facteurs consternés comme l'âge des parturients doivent être contrôlé dans un sondage dans l'avenir.

La bonne surveillance prénatale pourrait améliorer les poids de naissance.

Introduction

The birth weight is one of the important documentations the accoucheur makes as soon as the baby is born. It determines whether a baby needs special care. Above the 90th percentile, birth injuries do occur. Below the 10th percentile, respiratory distress and intraventricular haemorrhage do occur¹.

Early research on birth weight was geared towards influencing the size of the newborn and facilitating delivery: and preventing maternal obesity after delivery². The three major anthropometric components associated with pregnancy outcome – maternal height, pregravid weight and gestational weight gain, represent a

combination of genetic and environmental factors that influence the birth weight. Other factors such as intercurrent diseases and the indication and timing of interventions are also important determinants².

The specific objective of the study was to find out whether the various indications for caesarean delivery had any influence on the birth weight.

Methodology

The study was a retrospective survey done at the Korle Bu Teaching Hospital between September 1, 1998 and December 31, 1998. This hospital is a tertiary referral centre which has an annual delivery rate of 12,000. It serves a population of approximately three million inhabitants and it is situated in the capital city, Accra. Normal deliveries are carried out by the midwives and medical students. These are supervised by senior doctors including some fourteen obstetricians. Six hundred and seventy-three (673) caesarean deliveries and 2,737 vaginal deliveries were done during the period of study.

Labour was monitored by using the W.H.O. partograph. The adequacy of the pelvis was determined clinically.

The diagnosis of cephalopelvic disproportion (C.P.D.) was suspected in a patient whose height was less than 1.5m or whose symphysis-fundal height was more than 40 cm or whose foetus weighed about 4kg by ultrasound examination. The diagnosis was confirmed in labour when there was failure to progress despite adequate uterine contractions (more than 3 contractions in 10 minutes each lasting more than 45 seconds). Excessive moulding and caput formation strengthened the diagnosis.

The diagnosis of foetal distress was made from the persistence of irregular foetal heart rate even after the parturient had been resuscitated with O₂ per mask, normal-saline infusions, turning to the left lateral position as well as stopping any oxytocin drip. Passage of fresh meconium strengthened the diagnosis.

The diagnosis of placenta praevia was made on clinical grounds and confirmed by ultrasonography or examination at theatre.

The data sources were the labour ward and theatre records and the post natal notes.

The age and parity of the parturients, the gestational ages by date and by ultrasound scan, as well as the Apgar scores, the weight and sex of the new born were recorded at the labour wards and operative theatres. The indication for each caesarean section was listed against the maternal demographic characteristics. Babies who weighed more than 4kg or less than 2.5kg and those who appeared sick after resuscitation were admitted to the Neonatal Intensive Care Unit. The gestational age was here estimated again by using the Dubowitz criteria of neuro-developmental assessment³. Excluded from the study were 23 parturients whose gestations were either less than 28 weeks because they were classified as abortions by this hospital, or had delivered before arriving at the hospital with complications of the third or fourth stage of labour.

Statistics

The EPI INFO software, ver 6.04 was used to analyse the data $p < 0.05$ was taken as significant.

Correspondence

Results

From table 1, the mean age, parity and weight of the parturients who had caesarean section were 29.7yr. 1.8 and 3.17kg respectively. From (Table 2), the highest mean age (33.6 yr) was recorded among those who were diagnosed with C.P.D., while hypertensive diseases accounted for the lowest mean age of 26.1 yr. The highest average parity occurred among those who had had 2 or more caesarean sections.

Table 1 Caesarean deliveries

	Mean Age of Parturient (Yrs)	Mean Parity	Mean weight of Baby kg	Male/Female ratio	Still Birth rate per 1000 births
Total caesarean Section N = 650	29.7±2.1	1.8±0.4	3.17±1.1	1.2:1	57

In the study population the average birth weight was highest among those diagnosed as (cephalopelvic disproportion) C.P.D. (3.43kg) and the lowest occurred among those who presented hypertensive diseases (1.8 kg). The birth weight reflected on the indication for caesarean section as well as the parity/ and the age of the woman. Table 2.

Cephalopelvic disproportion was found in 192 cases in labour. The average birth weight was 3.4kg. The rest of 11 cases who had had a previous caesarean section, had an elective section at term for 'big babies'. The mean weight was 3.42kg which was not significantly different ($p>0.05$)

The parturients who had had 2 or more caesarean sections had elective delivery at 38 weeks ($n=30$) or had an emergency section in labour ($n=24$). The mean weight of the elective group was 3kg and that for the second group was 3.1kg. There was no significant difference. The mean weight for both groups was 3.02kg (Table 2).

Elective caesarean section was done for breech presentation in primigravida in 12 cases. The other breech presentations had failed to progress in labour ($n=24$). The mean birth weight of the former group was 2.8kg while the latter was 3.1kg and the difference was significant ($P<0.05$). Also the mean birth weight for all breech deliveries from caesarean section was 3.0kg (Table 2).

Foetal distress diagnosed with the aid of the Pinnard stethoscope or the cardiotocograph, was noticed in labour in 66 cases and in 14 cases of premature rupture of membranes. The average gestational age was 35 weeks; with 27% of the cases presenting at term. The mean weight was 3.1kg (Table 2).

Sixty-four (80%) of the cases of placenta praevia were delivered at term, (48 cases) 60% electively and (16 cases) 20% in labour. The rest of 16 cases were delivered preterm because of profuse bleeding. All the deliveries were done abdominally. The mean weight was 2.9kg. (Table 2). The diagnosis in most cases had been confirmed by ultrasound examination.

The 83 cases of P.I.H. and eclampsia presented in the second half of pregnancy. Forty-seven 55% were below 34 weeks and only (Twenty-six cases) 30% were at term. This group had the lowest hirth weight (1.8kg). *Abruptio placentae* presented with extreme prematurity (<32 wks) in fifty-nine (70%) of the cases. Term pregnancies accounted for only (twelve cases) 15%. The mean birth weight was second lowest (1.9kg).

The still birth rate was highest in emergency caesarian sections done for hypertensive diseases and *abruptio placentae* both of which were associated with severe prematurity. (Table 2)

While more males were born after C.P.D., delivery after presentation breech and *abruptio placentae* yielded more females (Table 2).

Discussion

The birth weight is ultimately the best measure of the quality of pregnancy⁴. In this study, however, the differences in the mean birth weight at Caesarean section reflected on the indications for intervention. (Table 2) Therefore the reasons for the interventions depicted the quality of care^{5,6} at the hospital.

This preliminary study did not control for important confounding factors such as the gestational age at delivery, and a prospective study covering a whole year is being designed to cater for the confounding factors as well as any seasonal variation in the population of parturients.

The obstetric outcome of the parturients operated on for previous history of 2 or more caesarean sections, foetal distress, breech presentation and, placenta praevia was expected to be satisfactory judging from their mean birth weights of more than 2.0kg (Table 2). However, in hypertensive disorders and *abruptio placentae*, where the mean birth weights were less than 2.0 kg the outcome was poor (Table 2). This is in agreement with earlier authors who noted similar poor foetal outcome⁷.

Caesarean sections were performed mostly by the resident doctors after consulting the specialists. An audit was done the following day by the whole department. The threshold for caesarean section after a previous one was too low judging by the mean weight of the babies (3.42kg) delivered electively.

The diagnosis of foetal distress needed to be refined with the study of the scalp PH and PO₂ before delivery as well as the cord PH, PO₂ and base-deficit after delivery but logistic constraints prevented this study.

The overall stillbirth rate of 57/1000 births (Table 1) was comparable to that obtained in a study done by Anyebuno⁸ at Korle Bu. However the stillbirth rate of 190/1000 births after caesarean section for *abruptio placentae* was too high (Table 2) and would warrant further studies in future.

Improvement in birth weight and therefore foetal outcome in our environment would require better antenatal surveillance and prompt identification and treatment of the high risk groups. Prompt treatment of PIH with antihypertensives and, the administration of prophylactic low dose aspirin may be useful for parturients at

Table 2 Indications for caesarean deliveries and their outcome

Indication	Mean age (Yrs)	Mean Parity	Mean Weight (Kg)	Male to Female ratio	Still birth rate /1000 Births
Abruptio placenta N=84	28 ± 2.1	2 ± 0.9	1.91 ± 0.4	0.44:1	190
Placenta praevia N=80	27.1 ± 1.9	1.72 ± 0.4	2.9 ± 0.3	1.33:1	30
Cephalopelvic disproportion N = 203	33.6 ± 2.9	1.24 ± 0.6	3.43 ± 0.2	3.6:1	9
2 or more previous caesarean section N=54	31 ± 3.1	2.35 ± 0.5	3.02 ± 0.4	1.3:1	37
Foetal distress N=80	24.5 ± 3.1	1.1 ± 0.2	3.1 ± 0.3	1.1:1	63
Breech N = 36	32.6 ± 2.8	2.1 ± 0.1	3.0 ± 0.1	0.38:1	0
P.I.H./Eclampsia N=83	26.1 ± 1.7	1.4 ± 0.3	1.82 ± 0.3	1.2:1	84
Other indications e.g. N = 30 cord prolapse	31 ± 3.0	2.2 ± 0.3	3.2 ± 0.2	1:1	64

risk of developing P.I.H.⁹. With the advent of ultrasonography, the diagnosis of placenta praevia could be improved further. Expectant management in line with MacCafee¹⁰ et al would improve upon the gestational age and birth weight before a caesarean section is done. Early ultrasound examination again would facilitate the correct dating for elective deliveries, to prevent the delivery of preterm babies with small weights.

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