

Indications of Caesarian Section as a mode of Delivery among Mothers at a Private Tertiary Hospital in Nairobi, Kenya

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Abstract: *Introduction:* Caesarean Section (C/S) rates are on the increase in many countries with good access to quality health care. *Study objective:* To determine the indications of C/S as a mode of delivery among mothers at the Mater Hospital, Kenya. *Methods:* Cross-sectional study design was used to collect data from the respondents. *Results:* The indications of C/S included mal-presentation ($p=0.006$), fetal distress, ($p=0.0001$), previous scar ($p=0.001$), hypertension (0.0001), failed induction ($p=0001$), prolonged labor ($p=0.0001$), previous bad outcome ($p=0.0001$) and gestational diabetes ($p=0.0001$). *Conclusion:* The hospital needs to initiate programmes to mitigate against the C/S deliveries that can be prevented during the pregnancy.

Keywords: Caesarian section, indications, Rates, labour, mothers

1. Introduction

Caesarean Section (C/S) is surgical procedure for delivery of a baby or babies when vaginal birth becomes contraindicated. The procedure was introduced in clinical practice as a strategy to improve the life of both the mother and the baby (1). Caesarean section is of benefit to pregnant women and the newborns when its indication is well-founded (2).

The prevalence of caesarean deliveries in developed countries has been attributed to multiple factors, including changes in physician/patient expectations and attitudes about risk, changes in clinical practice (e.g., fewer trials of labor after previous caesarean delivery, vaginal breech births, and instrumental deliveries (3). However, despite the constant increase in C/S rates, the morbidity associated with this procedure is still high in comparison to the vaginal delivery (4).

Various indications have been proposed for the observed increase in C/S as a mode of delivery. These include difficult labor, fetal distress, and breech presentation. Other indications included previous scar, adverse maternal and fetal outcomes (5). Other factors contributing to increased C/S rate include organizational factors, women's choices regarding childbirth and preference for care, in addition to obstetrician's characteristics, care and practice (6).

Another study revealed that the four most common medical indications for caesarean delivery are failure to progress during labor (30%), previous caesarean section (30%), non-reassuring fetal status (10%) and fetal malpresentation (11%). In this study, the less common indications for caesarean delivery included abnormal placentation (for example placenta previa, vasa previa, placenta accrete) and maternal infections like herpes

simplex and human immune deficiency virus. Other indications of C/S observed from the results of this study included multiple gestation, fetal bleeding diathesis, mechanical obstruction to vaginal birth (for example large leiomyoma or condyloma acuminata) severely displaced pelvic fractures, macrosomia and fetal anomalies such as severe hydrocephalus (7).

Apart from medical indications, other reasons for the increase in the rates of caesarean delivery are fear for vaginal delivery, multiple pregnancies, and the increase in the use of electronic foetal monitoring. The belief that caesarean delivery is safer for the mother and the baby have also contributed to its increased utilization (8). Although there are many indications to C/S as earlier demonstrated, studies have demonstrated an inverse relationship between C/S and maternal/ infant mortality rates in developing countries due to inadequate health care resources (9). Even in areas with advanced technology in operative techniques and broad spectrum antibiotics, complications associated with C/S are still rampant. Short term risks associated with C/S include postpartum morbidity and reduced fertility. Further, C/S is associated with foetal respiratory distress, less breast feeding, birth trauma and transient tachypnoea (10). Despite these complications, C/S deliveries at the Mater Hospital have been on the increase, ranging from 39% in 2011 to 45.9% in 2013. These statistics are high compared to the World Health Organization (WHO) guidelines which state that no region in the world is justified in having a caesarean section rate greater than 15% which is the median percentage observed worldwide (11).

2. Study Objective

The study objective was to identify the indications of Caesarian Section as a mode of delivery at The Mater Hospital, Nairobi-Kenya

Volume 6 Issue 2, February 2017

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3. Study Methods

3.1 Study design

Descriptive cross-sectional study design was used to collect data from the respondents at the Mater Hospital in Nairobi, Kenya.

3.2 Data collection tools and procedure

Data from the respondents was collected using semi-structured questionnaires and an interview guide. The respondents included mothers aged between 18 and 49 years who had been delivered through C/S for the last one year in the hospital. A total of 79 mothers were sampled.

Doctors and midwives providing services at the maternal and child health department also formed part of the study population, as the key informants. The sampled doctors were 12 while midwives were 23.

Validity and reliability of study was ensured through pre-testing of the data collection tools, ensuring that the responses in the data collection tools were appropriate and also cross checking data for correct entry. Permission to collect data was obtained from the relevant authorities. The study participants also signed an informed consent before data collection.

3.3 Data analysis

Both qualitative and quantitative data was validated coded and keyed into the computer. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 22. Chi square was used to determine the relationship between variables ($p \leq 0.05$).

Qualitative data gathered was analysed based on the themes through a thematic and content analysis. The analysis was based on the main themes of the study focusing on issues and patterns emerging from the responses. The emerging salient patterns were discussed. The qualitative data was presented in descriptive narrative. Key quotations from the data, using respondents own words were incorporated to illustrate the main ideas. The study findings were presented in tables and charts.

4. Study Results

The study results showed that 39 (57%) of the C/S deliveries were performed as emergencies. This means that the mothers had not been booked by the hospital. This contributed to more than half the number of C/S performed in the hospital. Twenty nine (43%) of the C/S deliveries were elective and booked (elective), hence planned. This is an indication of a relatively high number of elective C/S deliveries by the mothers accessing maternal health services at hospital (figure 1 below).

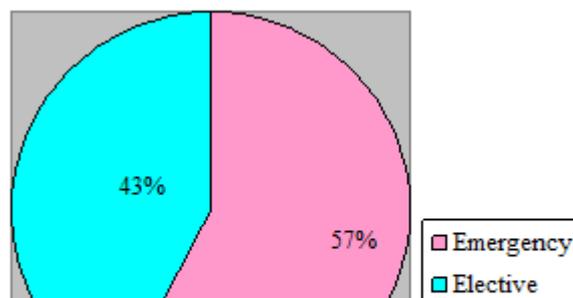


Figure 1: Nature of caesarian sections

Results of the study further revealed that malpresentation was the main indication for the C/S, contributing to 15 (22.1%) of the total C/S performed in the hospital. Foetal distress accounted for 13 (19.1%), previous caesarian section scar contributed to 12(17.6%) of the C/S deliveries, while Cephalo-pelvic disproportion (CPD) and prolonged labor was reported contributed to 7 (10.3%) of the deliveries. Other indications for C/S delivery were hypertension [4 (5.9%)] and failed induction of labour [2(2.9%)]. Mother's request, previous bad outcomes of labour and gestational diabetes accounted for two (2.9%) of the C/S deliveries. However, two (2.9%) of the respondents declined to indicate any reasons taking up C/S as the preferred mode of delivery (table 1).

The key informants revealed that due to improved and better technology in labor and fetal monitoring, failed labor and fetal distress are usually noticed early necessitating C/S mode of delivery among mothers in the hospital. According to the key informants, previous scar, labor pain phobia and ability to afford caesarian section were also contributing factors to increased uptake of caesarian section as a mode of delivery in the hospital.

Table 1: Indications of caesarian sections among the mothers

| Indication | Frequency | Percentage |
|----------------------|-----------|------------|
| Mal presentation | 15 | 22.1 |
| Fetal distress | 13 | 19.1 |
| Previous CS scar | 12 | 17.6 |
| CPD | 7 | 10.3 |
| Prolonged labour | 7 | 10.3 |
| Hypertension | 4 | 5.9 |
| Failed induction | 2 | 2.9 |
| Mother's request | 2 | 2.9 |
| Previous bad outcome | 2 | 2.9 |
| Gestational diabetes | 2 | 2.9 |
| No response | 2 | 2.9 |
| Total | 68 | 100 |

5. Discussions

The study results showed that 57% of the C/S deliveries were performed as emergencies while 43% of the C/S were performed as elective. These findings were similar to the ones of a study on the prevalence and indications of caesarean section in a Teaching Hospital whereby 61.35% of

the C/S were performed as emergency, with 38.6% being elective surgeries (12).

Less than half (47.1%) of the respondents indicated that, the C/S deliveries were due to mother related conditions while 42.6% indicated that the C/S deliveries were due to baby related reasons. Similar findings were realized in another study carried out on the indications for and risks of elective cesarean section, whereby the increased rates of C/S were found to be due to changed risk profiles for both the expectant mother and the unborn baby (13).

Findings of this study demonstrated that about 22.1% of the respondents cited malpresentation as the reason for the CS delivery. This indication had a significant relationship to the uptake of C/S as a mode of delivery ($p=0.006$, $\chi^2=27.681$). However, this is contrary to the results of a descriptive analysis of the indications for caesarean section in mainland China whereby malpresentations like breach accounted to only 6.6% of the C/S deliveries (14).

Foetal distress had a significant relationship to delivery by C/S (0.0001, $\chi^2=6.34$) and this was reported in 19.1% of the respondents. Similarly, 15% of the C/S performed according to a study on the indications of caesarean section in Mymensingh Medical College Hospital were due to foetal distress (15).

Having a previous C/S was demonstrated as significant influence to delivery by C/S ($p=0.001$, $\chi^2=30.024$), and this was reported by 12(17.6%) of the respondents. These findings concur with those of another study in which case women experiencing C/S at the time of their first delivery predisposed most of them to a repeat C/S in the subsequent deliveries (16). Another similar study also demonstrated that previous caesarean section was a main predictor of repeat C/S (12).

Other reasons for C/S as indicated by the mothers showed a significant relationship to delivery by C/S. These included cephalopelvic disproportion ($p=0.0001$, $\chi^2=2.56$) which was reported by 10.3% of the respondents, (5.9%) hypertension (0.0001, $\chi^2=9.34$), with 2.9% citing failed induction of labour as the main indication of C/S ($p=0.0001$, $\chi^2=35.690$). This is true because given these situations, its a matter of saving the life of the mother and the baby in the shortest time possible, leading to the decision of performing C/S. Some of the respondents cited prolonged labour ($p=0.0001$, $\chi^2=8.39$), previous bad outcome of labour like still birth ($p=0.0001$, $\chi^2=7.632$) and gestational diabetes ($p=0.0001$, $\chi^2=5.98$) as the indicators for C/S. Prolonged labour in most of the situations leads to maternal distress in which case the mother does not have the ability to push the baby out. This may later lead to foetal distress if quick life saving measures like C/S is not undertaken in the fastest time possible. These findings almost concurred with a study on the rising trend and indications of caesarean section at the university of Maiduguri teaching hospital, Nigeria, which identified cephalopelvic disproportion and failed induction of labor as some of the main indications of C/S (17).

6. Conclusion

From the study findings, the main indications of caesarian section as a mode of delivery include malpresentation, foetal distress, Previous C/S scar, cephalopelvic disproportion, hypertension, failed induction, prolonged labour, previous bad labour outcome and gestational diabetes.

Since half of the C/S deliveries in the Hospital were due to maternal reasons, the hospital needs to initiate programmes to mitigate against C/S deliveries that can be prevented, especially during the pregnancy. Pregnant mothers need to be well informed about what they can do to minimize C/S deliveries.

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