

DECISION TO DELIVERY INTERVAL FOR EMERGENCY CAESAREAN SECTION AT A NIGERIAN HOSPITAL.

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ABSTRACT

Introduction: Caesarean section (CS) is the most common surgery performed in women of reproductive age. It is performed as an elective or emergency procedure. Emergency CS is carried out when the woman is in labour. The time interval from the decision to delivery interval (DDI) is important.

Research Methodology: This was a retrospective study carried out at a Nigerian hospital. The hospital labour ward booking register, reception register and operating room register were the source of data collection.

Results: Five hundred and twenty two emergencies CS were studied. Mean decision to delivery time was 218.03 minutes. Only 4.21% had emergency CS carried in less than 30 minutes after the decision to do operative delivery was taken. 2.30% (12) had DDI of less than 15 minutes. Majority of the emergency CS was done 151-180 minutes 74(14.18%).

Conclusion: There is need to conduct more research to find out the causes of delay of delivery after decision to carry out emergency CS was made to help reduce maternal and perinatal morbidity and mortality.

Key words: Caesarean Section, Decision, Delivery Time, Emergency.

INTRODUCTION

Caesarean section (CS) represents a significant operative intervention in obstetrics. Its development and application has saved the lives of countless mothers and infants¹. CS is one of the oldest operations, an ancient operation and is an essential operation that is practised widely^{2,3,4}. It is one of the most common surgical procedures in obstetrics and there is a high increase in CS rate⁵. The term CS describes the delivery of a baby through a surgical incision on the uterine and anterior abdominal walls after viability⁶. The operation is usually employed in cases where vaginal delivery would put the baby or mother's life or health at risk although in recent times it has been also been performed upon request for a delivery that would otherwise have been natural,⁷ and can be done either as an elective or emergency^{8,9}. CS performed appropriately and following an appropriate medical indication are potentially life-saving procedures for both the mother and the baby¹⁰. Every year in the world, there is an additional need for 0.8-3.2 million CS in low income countries where 60% of the world's births occur. In this context, the provision of timely and

safe CS in high maternal mortality countries is a major challenge faced by local health systems¹¹.

CS has been shown to be a safe operation¹². Avoiding the adverse neonatal effects of perinatal asphyxia has been one of the common indications for caesarean deliveries in current obstetric practice¹³. An emergency can be defined as situation of a serious and often dangerous nature, developing suddenly and unexpectedly and demanding immediate attention in order to save a life¹⁴. The time line between a decision being made and delivery of the baby is referred to as a decision delivery interval (DDI)^{15,16}. Professional associations of obstetricians and gynaecologists recommend that the DDI for emergency CS should not exceed 30 minutes¹⁷. The "30 minutes rule" for a DDI takes its origin from the guidelines to perinatal care developed jointly by the American academy of paediatricians and the American college of obstetricians and gynaecologists¹⁸. In 1995, the Royal College of Obstetrics and Gynaecology published the "organisational standards for maternity services" in which it proposed that there

be a maximum DDI of 30 minutes for urgent CS¹¹. The aim of this study is to find out the time interval between the decision to perform an emergency CS and when it was actually performed in a centre in a developing country where the doctors are few to care for the general populace.

RESEARCH METHODOLOGY

This is a retrospective study carried out at a Nigerian tertiary hospital. The decision to perform an emergency CS was made by the most senior obstetrician around who is the consultant on call or the senior registrar. When the decision is made notes are made in the patients' folder, the labour ward operating theatre and the attached anaesthetist(s) are informed. The patient and patient's spouse are counselled. Necessary investigations are done. Written informed consent is obtained. When both patient and obstetrician are ready, the patient is transferred to the labour ward operating room and surgery is commenced. The nurses take records of time and have registers for the time of booking the labour ward operating theatre, time of patient arrival and time surgery commences. These registers were the source of data for this study.

RESULTS

This study was carried out at a Nigeria hospital of which 522 women who had emergency caesarean sections were studied and 155(29.69%) were unbooked patients while 396(70.31%) were booked patients. The DDI for the 522 women are shown in Table 1. The mean DDI at the study centre was 218.03 minutes equivalent to three hours, 38.03 minutes. Majority of the emergency caesarean section were carried between 151-180 minutes 74 (14.18%) after the decision of operative delivery was made. Only 8(1.53%) had their emergency CS carried out immediately the decision to deliver by CS was made and 12(2.30%) in less than 15 minutes once the decision of emergency CS was made. For anaesthesia used for the CS 87.16%(455) had subarachnoid block, 10.54%(55) general anaesthesia, 0.96%(5) local infiltration with sedation, 0.96%(5) total intravenous anaesthesia, 0.19%(1) combined spinal anaesthesia and 0.19%(1) epidural anaesthesia.

TABLE 1: Showing The Decision To Delivery Interval For Emergency Caesarean Section

Decision to delivery Interval in minutes	N	%
0-30	22	4.21
31-60	34	6.51
61-90	50	9.58
91-120	61	11.69
121-150	51	9.77
151-180	74	14.18
181-210	41	7.85
211-240	32	6.13
241-270	26	4.98
271-300	24	4.60
301-330	12	2.30
331-360	12	2.30
361-390	13	2.49
391-420	13	2.49
421-450	4	0.77
451-480	7	1.34
481-510	6	1.15
511-540	7	1.34
541-570	3	0.57
571-600	1	0.19
601-630	6	1.15
631-660	2	0.38
661-690	1	0.19
691-720	5	0.96
721-750	4	0.77
751-780	2	0.38
781-810	2	0.38
811-840	1	0.19
841-870	-	-
871-900	1	0.19
901-930	1	0.19
931-960	2	0.38
961-990	-	-
991-1020	-	-
1021-1050	2	0.38
	522	100

DISCUSSION

A CS is a complex multidisciplinary procedure¹². Obstetric emergencies are the leading causes of maternal mortality worldwide and particularly developing countries where literacy, poverty, lack of antenatal care, poor transport facilities and inadequate equipment/staffing combine to magnify

the problem¹. The emergency category of CS is broad as it may include procedures done within minutes to save the life of a woman or baby as well as those in which woman and baby as well as those in which but where early delivery is needed for example a woman with a planned elective CS who is admitted in labour². When urgent CS is performed, it is widely advocated that the interval between the decision to operate and delivery of the baby should be less than 30 minutes. The recommendation states that a unit should be able to perform a CS within 30 minutes, implying that the interval between decision and delivery may be a little longer³. The Obstetric Anaesthetists Association (OAA) recommended minimum standard in emergencies is that the time from informing the anaesthetist to start of surgery should not exceed 30 minutes⁴. In this study only 4.21% emergency CS were done within 30 minutes after making the decision. Some of the emergency CS were carried out 10 hours after taking the decision to operate. 2(0.03%) emergency CS were carried out 1021-1050 (17hours-17hours 30 minutes) after the decision was made.

Majority of the emergency CS at the study centre had a DDI of 151-180. 74(14.18%) many previous studies have demonstrated that for grade 1 and 2 CS maternal caesareans performed when there is an immediate threat to the life of the woman or foetus or when there is evidence of maternal or foetal compromise which is not immediately life threatening maternal and perinatal outcomes deteriorate measurably when the DDI exceeds 75 minutes⁵. Quick delivery is dependent on decision to perform caesarean delivery and time lines archived⁶. ADDI of 30 minutes, a concept initiated by the American College of Obstetrician and Gynaecology has opened the debate as controversy about neonatal outcome when this time interval is considered in isolation¹². Emergency CS should be performed as quickly as possible in keeping with the capabilities of the institution. Decision to delivery time is an important and integral part of critical conduct interval in acutely compromised foetus¹³. The 30 minutes DDI for emergency CS, despite being a pragmatic rather than evidence-based rule is widely accepted¹². Once a decision to deliver has been made, delivery should be carried out with urgency appropriate to the risk to the baby and the safety of the mother²⁰. Limits should strive to design guidelines that result in the shortest safety achievable DDI. The time taken for a patient to reach the operating theatre is a critical predictor of the DDI²¹.

A target DDI for CS for foetal compromise of 30 minutes is an audit tool that allows testing of the efficiency of the whole delivery team and has become accepted practice however certain clinical situations will require a much quicker DDI than 30 minutes and units should work towards improving their efficiency, undue haste to achieve a short DDI can introduce its own risk both surgical and anaesthetic with the potential for maternal and neonatal harm⁷. Evidence suggests that any delay is usually associated with the delay in transfer to theatre and in starting the anaesthetic^{14,15}.

In practice the DDI is mainly influenced by the facilities and manpower availability¹⁶. The 30 minute period from the decision for the emergency CS until the baby's delivery (DDI) was accepted as a golden standard¹². It seems that the time from the decision for the surgical delivery, transfer of the patient to the operating room, preparation of the team for the surgery and administration of anaesthesia lasts for more than 30 minutes¹⁷. Various teaching and general hospitals have carried out audits on their response time for emergency CS to assess if the proposed standards could be met in their institutions¹⁸. Prevention where possible and prompt and effective treatment of obstetric emergencies will go a long way to reduce the magnitude of ever increasing maternal mortality which appears to have defied all proposed measures set to reduce it by world health organization¹⁹.

CONCLUSION

Reduction in the DDI will decrease maternal and perinatal morbidity and mortality rates. There is need for enlightenment of the populace on CS as it is seen in most Nigerian cultures that the woman is not strong enough to bring forth a child. Women education should be encouraged because in Nigeria, most women cannot give consent on their own except their husband or in-laws also even at the detriment of the woman's health and that of the unborn child.

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