

Retrospective Study on the Decision to Delivery Interval

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Abstract: The decision-to-delivery interval (DDI) is defined as the interval in minutes from the date and time of decision to carry out Caesarean section to the date and time of delivery of the baby. It is not synonymous with decision-to-incision time where the goal of the birth of a baby is yet to be achieved. A decision-to-delivery interval of 30 minutes for emergency Caesarean section has been widely recommended, but there is little evidence to support it. Inability to meet this target has been the basis for medico-legal suits. The '30 minute rule' for a DDI takes its origin from the Guidelines to perinatal care jointly developed by the American Academy of Paediatrics and the American College of Obstetricians and Gynaecologists. Our objective in this study was to find out the time between decision-delivery interval and perinatal outcome of emergency caesarean section at a tertiary care institution in Sri Ramachandra university, Chennai.

Keywords: Categories of caesarean section, decision to delivery interval.

Date of Submission: 12 -01-2018

Date of acceptance: 26-01-2018

I. Introduction

In modern Obstetrics, routine Caesarean deliveries are offered electively to women for variety of indications; or performed in emergency fetal or maternal complications or both. Caesarean section has been classified based on the severity of fetal and/or maternal situation into emergency, urgent, scheduled and elective Caesarean deliveries. According to the classification, emergency CS is performed in situations that are extremely life-threatening for the mother or fetus or both. Emergency Caesarean delivery is the one performed for maternal or fetal compromise which is not immediately life-threatening. Scheduled Caesarean Section is done in situations needing early delivery but no maternal or fetal compromise. The decision-to-delivery interval (DDI) is defined as the interval in minutes from the date and time of decision to carry out Caesarean section to the date and time of delivery of the baby. It is not synonymous with decision-to-incision time where the goal of the birth of a baby is yet to be achieved. A decision-to-delivery interval of 30 minutes for emergency Caesarean section has been widely recommended, but there is little evidence to support it. Inability to meet this target has been the basis for medico-legal suits. The '30 minute rule' for a DDI takes its origin from the Guidelines to perinatal care jointly developed by the American Academy of Paediatrics and the American College of Obstetricians and Gynaecologists. Recent studies however, have cast doubts not only on the practicability of this target but also on its anticipated beneficial effect on neonatal outcome.

A systematic review found limited research to underpin this standard, and 30 minutes is an arbitrary threshold.^{2 4-7} It has been suggested that rapid delivery may be dangerous in itself for the fetus. However, the most compromised babies are most predisposed to a poorer outcome and are also often delivered with the least delay, and this needs to be taken into account when assessing the effects of a rapid delivery. Rapid delivery may also increase the risk of maternal mortality, as a result of surgery or factors such as general anaesthesia.

Perceived urgency can be critical in motivating a caesarean section. A grading system for urgency was evaluated in the national sentinel caesarean section audit. Using data from this audit, we examined the association between decision to delivery interval and baby and maternal outcomes, after adjustment for clinical factors associated with poor fetal, neonatal, or maternal outcome.

Our objective in this study was to find out the time between decision-delivery interval and perinatal outcome of emergency caesarean section at a tertiary care institution in Sri Ramachandra university, Chennai. Thus, in the present study was designed to audit the " decision to delivery interval " for emergency LSCS – category 1, to determine whether the current standard of 30minutes is achievable routinely and to analyse the impact of DDI on the maternal and fetal outcomes. Total number of patients included in this study were 500 patients. Factors related to patient, obstetrician, anaesthesiologist, staff and resource constraints, contributing to delay in DDI were also evaluated. The aims of the study were

To encourage universal use of a nationally accepted classification of urgency of caesarean section with the aim of:

- facilitating local and national data collection
- minimising communication difficulties relating to urgency of delivery, between and within teams
- facilitating retrospective audit of outcomes.

To formalise the concept that urgency of caesarean section represents a continuum of risk:

- four broad categories of risk are defined
- all staff should be aware that, within each category, the degree of risk in individual cases can vary
- a coloured spectrum is used to emphasise that continuum of risk
- this variance in degree of risk requires an individual, case-by-case approach in deciding the specific decision-to-delivery interval (DDI).

In the National Sentinel Caesarean Section Audit (2001) only 63% of UK obstetric units were able to deliver even half of their most urgent cases within 30 minutes [1]. It has been suggested that longer decision-to-delivery times arise because a multitude of tasks has to be completed in a coordinated fashion by a relatively large multidisciplinary team before the caesarean can take place [2], thus, staff shortages, poor training, and lack of appropriate facilities all have the potential to slow the process.

II. Materials And Methods

2.1 AIM

The aim of this study was to assess how close our obstetric unit is adherent to achieve this target of 30 minutes for emergency caesarean section (category I) and to identify ways of improving our performance.

2.2 TYPE OF STUDY

Retrospective study

2.3 PERIOD OF STUDY

June 2016- December 2016

2.4 STUDY PLACE

Sri Ramachandra University

2.5 INCLUSION CRITERIA

All category 1 LSCS (immediate threat to the life of woman of fetus)- examples – cord prolapsed, fetal distress, abruption placenta, uterine rupture.

2.6 EXCLUSION CRITERIA

All other categories else than category 1.

III. Results

Total number of patients in this study were 500 in total. The reasons for caesarean section were fetal distress, previous LSCS in labour , cord prolapsed, Antepartum hemorrhage , malpresentation. Out of 500 patients , 44% had fetal distress, 1% cord prolapsed, 43.6% of previous LSCS with scar tenderness/ scar dehiscence,4% of placental abruption/ placenta previa, 7% of obstructed labour / Cephalo pelvic disproportion , 0.8% of other presentations in labour.

The reasons for delay in caesarean section , are most commonly were delay in transfer to operation theatre, availability of blood products, adhesions or any difficult delivery during labour, non availability of operation theatre. Out of 500 patients, 50 patients delivered after 30 minutes and reasons are 40% in delay in transfer to theatre , 40 % had adhesions. 20% of patients had difficulty in delivery of the head. 2% needed blood products.

IV. Discussion

Attempts to enforce an ideal time limit to minimise morbidity related to caesarean section , have been a subject of intense research by obstetricians as well as anaesthesiologists. To conform to the recent NICE 2011 guidelines, it is mandatory that obstetric units should conduct regular audits of their decision to delivery interval. 450 of 500 (90%) women were delivered in 30 minutes and 45 of 500 (9%) within 40 minutes; 5 of 500 (1%) were delivered at 50 minutes. (Fig 1)

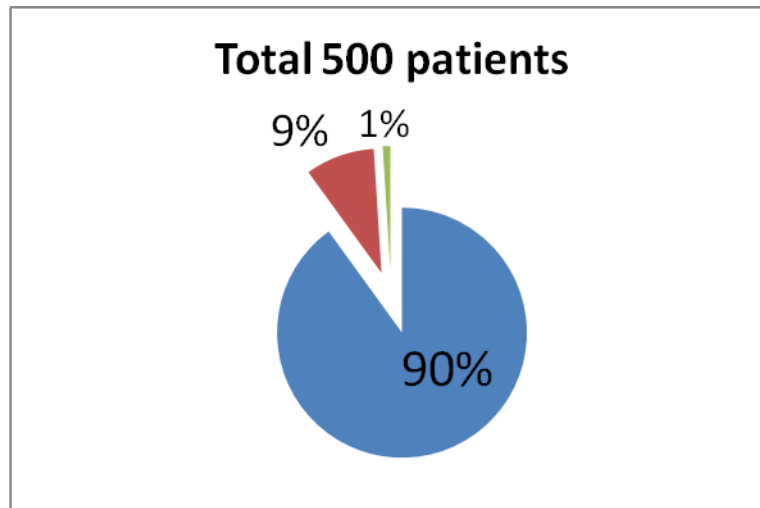


Fig 1- results

V. Conclusion

In Resource constrained hospitals , the condition is further worsened by the fact that these midwives /ward – helpers have additional duties such as arranging for basic resources . therefore , adequate recruitment of ancillary staff, better technologically advanced communication equipment , and protocol with regular ‘ fire drills ‘ can all reduce the delay in DDI.

A limitation of this study is that we assessed the neonatal outcome only by APGAR scores and NICU admissions as these are claimed to be restricted measures of fetal hypoxia. We suggest that future audit should involve introduction of time sheets , after proper sensitization of the emergency care personnel involved in care of the parturient for emergency LSCS.

Identifying obstacles responsible for delay at different stages and improving coordination between members of the surgical team are essential components to improve the quality of services in obstetric units. Since these data are generated from a busy , tertiary care center , we find that there are huge gaps in areas of clinical practice which needs to be addressed and needs more critical appraisal to bring about improvements.

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Dr. Shylu Senthil Kumar "Retrospective Study on the Decision to Delivery Interval." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 1, 2018, pp. 01-03.