International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2021; 5(1): 19-25
Received: 09-11-2020
Accepted: 15-12-2020

Dr. Radhika K
Senior Resident, Department of Obstetrics and Gynecology, Sri Devaraj Urs Medical College Tamaka, Kolar, Karnataka, India

Dr. Gomathy E
Professor, Department of Obstetrics and Gynecology, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India

Corresponding Author:
Dr. Radhika K
Senior Resident, Department of Obstetrics and Gynecology, Sri Devaraj Urs Medical College Tamaka, Kolar, Karnataka, India

A prospective observational study on decision to delivery interval and perinatal outcome in emergency caesarean section in tertiary care hospital

Dr. Radhika K and Dr. Gomathy E

DOI: https://doi.org/10.33545/gynae.2021.v5.i1a.788

Abstract
Background: In a life-threatening context, the American College of Obstetrics and Gynecology and the Royal College of Obstetrics and Gynaecology recommended a maximum delay of 30 min between the decision to perform an emergency caesarean delivery and the infant's birth. This limit is usually not met in a rural tertiary centre in a developing country. If this delay in decision to delivery interval (DDI) had any effect on perinatal outcome was studied in this study.
Objectives:
1) To identify the factors causing delay in decision to delivery interval for emergency caesarean section.
2) To assess the effect of decision delivery interval on perinatal outcome.
Materials and Methods: This is a prospective cross-sectional observational study conducted in R.L. Jallapa Hospital and Research centre, Department of Obstetrics and Gynecology, attached to Sri devaraj urs Medical College, Kolar during January 2017 to May 2018.A total of 200 pregnant women posted for emergency caesarean delivery were included during the study period.
Results: Among 200 participants, 39 (19.5%) belonged to category 1, 82(41%) to category 2 and 79 (39.5%) to category 3. The mean DDI in the study participants was 79.28 ± 28.66 mins. Mean DDI for category 1, 2, and 3 caesarean deliveries were 47.23 ± 13.35 mins, 64.83 ± 11.83 mins and 110.1 ± 13 mins respectively. Among study cases, 72, 5% babies were shifted to mother's side after caesarean delivery, 27% babies were shifted to NICU and 0.5 % were stillborn.
Conclusion: Neonatal outcomes did not differ significantly in between those caesarean deliveries with DDI≤30 mins and those with DDI>30 mins. It is difficult to achieve 30 minute goal in every emergency caesarean delivery and it is also not an indispensible measure to prevent maternal or neonatal morbidities. But DDI of ≤30 mins is not unachievable in case of urgent indications like cord prolapse. Hence it is necessary for each emergency obstetric unit, to effectively triage emergency caesarean deliveries and develop the capability of commencing such cases as fast as possible.

Keywords: DDI, emergency caesarean section, neonatal outcome

Introduction
Emergency caesarean section in most commonly performed lifesaving obstetric operation. It refers to the delivery of fetus which has attained a viable gestational age, placenta and membranes through an abdominal and uterine incision in cases where vaginal delivery is not feasible or would impose undue risks to mother or baby or both.

Decision-delivery interval: The timeline between a decision being made to terminate the pregnancy by caesarean section and delivery of baby [1]. National institute for clinical excellence (NICE) clinical guideline on electronic fetal monitoring recommends that in cases of suspected or confirmed acute fetal compromise, delivery should be accomplished within 30 minutes [2]. As number of caesarean deliveries in tertiary centers are rising each day it becomes a great responsibility on the clinicians to make a decision of emergency cesarean section and to assess its affect on maternal-fetal outcome. This is an uphill task to achieve in our set up. The major hurdles in this 30 minutes target of DDI are, increase in patients load which can lead to a long waiting list for surgery; problems in availability of enough number of operation theatres; scarcity of surgical staff in emergency hours including surgeons, anesthetists, nurses and theatre staff; lack of coordination at all levels; and transportation delay in shifting the patients from labor rooms to operation theatre [3]. Identifying these factors responsible for delay in decision to incision time, would also enable us in setting standards and clinical guidelines to provide optimal care to the patients.

A decision-to-delivery interval (DDI) of 30 minutes for emergency caesarean sections has been widely recommended, but there is little evidence to support it. Recent studies however, have questioned not only the practicability of this target but also its anticipated beneficial effect on neonatal outcome and medico-legal implications. Our objective in this study is to find out the time between decision-delivery interval and perinatal outcome of emergency caesarean section at a tertiary care.

Objectives of the study

1) To identify the factors causing delay in decision to delivery interval for emergency caesarean section.
2) To assess the effect of decision delivery interval on perinatal outcome.

Material and Methods

Prospective observational study

Source of data

This study was conducted in the Department of Obstetrics & Gynaecology at the R.L. Jalappa hospital, which is a tertiary care hospital located in Kolar, from January 2017 to May 2018.

Method of collection of data

Inclusion criteria: Pregnant women at term in whom decision for emergency caesarean delivery was taken and who delivered a singleton baby.

Exclusion criteria

1. Pregnant women posted for elective caesarean delivery.
2. Pregnant women with medical co-morbidities which independently could result in poor maternal outcome.
3. Pregnant women who delivered a baby with any congenital anomaly.
4. Cases where data was not recorded properly.

A questionnaire is designed containing information about, demographic details, pregnancy details, indication for emergency caesarean section, stage of labor, grade of obstetrician managing the case, time of decision to emergency caesarean section, time at arrival to theatre (TTT), time start of anesthesia, time delivery of the baby, type of anesthesia used, time and day of delivery, neonatal outcome (Apgar score at 1 min, 5 min birth weight, admission to NICU, condition at discharge), maternal outcome with regard to recovery from anesthesia, need for blood transfusion, condition at discharge.

Statistical analysis: Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and SD. ANOVA (Analysis of Variance) was the test of significance to identify the mean difference between more than two groups for quantitative data.

Graphical representation of data: MS Excel and MS word was used to obtain various types of graphs such as bar diagram, Pie diagram.

p value (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Statistical software: MS Excel**,** SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyze data.

Results

Amongst 1013 emergency caesarean deliveries, 200 cases were selected by simple random sampling after confirming that they satisfied the inclusion and exclusion criteria.

Mean age was 25.43±3.644 years. Majority of women were in the age group 26 to 30 years (44%).

- 53.5% of women were nulliparous women and 46.3% were multiparous.
- 86% of women were in gestational age of 37-40 weeks and 14% of women were in gestational age in 41-42 weeks.

Among 200 participants, 39(19.5%) belonged to category 1, 82(41%) belonged to category 2 and 79(39.5%) belonged to category 3.

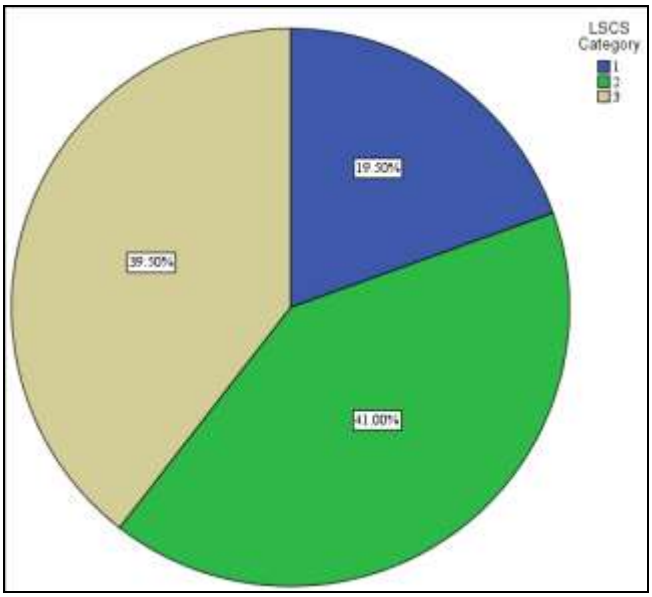

Fig 1: Pie diagram showing LSCS Category distribution among subjects

Table 1: Descriptive analysis for DDI and different intervals in study population (N=200)

Parameter	Mean ±STD	Median	Min	Max	95% C.I. forEXP(B)	
					Lower	Upper
Interval 1	39.68 ± 22.51	30.00	10.00	90.00	36.54	42.82
Interval 2	17.50 ± 6.930	15.00	4.00	35.00	16.54	18.47
Interval 3	15.66 ± 4.966	15.00	5.00	30.00	14.97	16.36
Interval 4	6.48 ± 1.591	6.00	4.00	12.00	6.26	6.70
DDI	79.28 ± 28.66	71.00	26.00	141.00	75.28	83.28

- The mean DDI in the study participants was 79.28±28.66 mins. The mean DDI for interval 1, interval 2, interval 3 and interval 4 were 39.68±22.51, 17.50±6.930, 15.66±4.966 and 6.48±1.591 mins respectively.

Table 2: Comparison of mean DDI across different caesarian sections in study population (N=200)

Category	DDI Mean ± SD	Mean difference	95% Confidence Interval for Mean		P value
			Lower Bound	Upper Bound	
Category 1 (Base line)	47.23±13.35				
Category2	64.83±11.83	17.59	12.76	22.43	<0.001
Category 3	110.1±13	62.8	58.01	67.74	<0.001

- Mean DDI for category 1, 2, 3 caesarean deliveries were 47.23±13.35 mins, 64.83±11.83 mins, 110.1±13 mins respectively. Duration of DDI varied significantly in between the caesarean categories.

Table 3: Comparison of DDI across different caesarian sections in study population (N=200)

Category	DDI					
	≤30	31-60	61-75	76-90	91-120	>120
Category 1 (N=39)	4 (10.256%)	27 (69.23%)	8 (20.51%)	0 (0%)	0 (0%)	0 (0%)
Category2 (N=82)	0 (0%)	31 (37.80%)	37 (45.12%)	12 (14.63%)	2 (2.439%)	0 (0%)
Category 3 (N=79)	0 (0%)	0 (0%)	0 (0%)	5 (6.329%)	58 (73.41%)	16 (20.25%)

- All 4 cases where DDI was < 30 min belonged to category 1 casearean delivery. 100 % of category 1 caesarean deliveries were performed within 75 minutes. All cases where DDI was > 120 minutes belonged to category 3 casearean deliveries.

Factors causing delay in DDI

Table 4: Causes for delay in performing caesarean section

	Yes		No	
	N	%	N	%
No delay	4	2.0%	196	98.0%
Delay in Obtaining Consent	91	45.5%	109	54.5%
Delay in Cross Matched Blood	36	18.0%	164	82.0%
Non Availability of Basic Investigations	57	28.5%	143	71.5%
Delay in Arrangement of Drugs	77	38.5%	123	61.5%
Preparation of OT Table In Between Surgeries	80	40.0%	120	60.0%
Non Availability of OT Table during Daytime	33	16.5%	167	83.5%
Procedural Delay in Inducing Anesthesia	62	31.0%	138	69.0%
Failed Spinal Converting To General Anesthesia	6	3.0%	194	97.0%
Delay in Extraction Due To Adhesions and Malpresentation	10	5.0%	190	95.0%

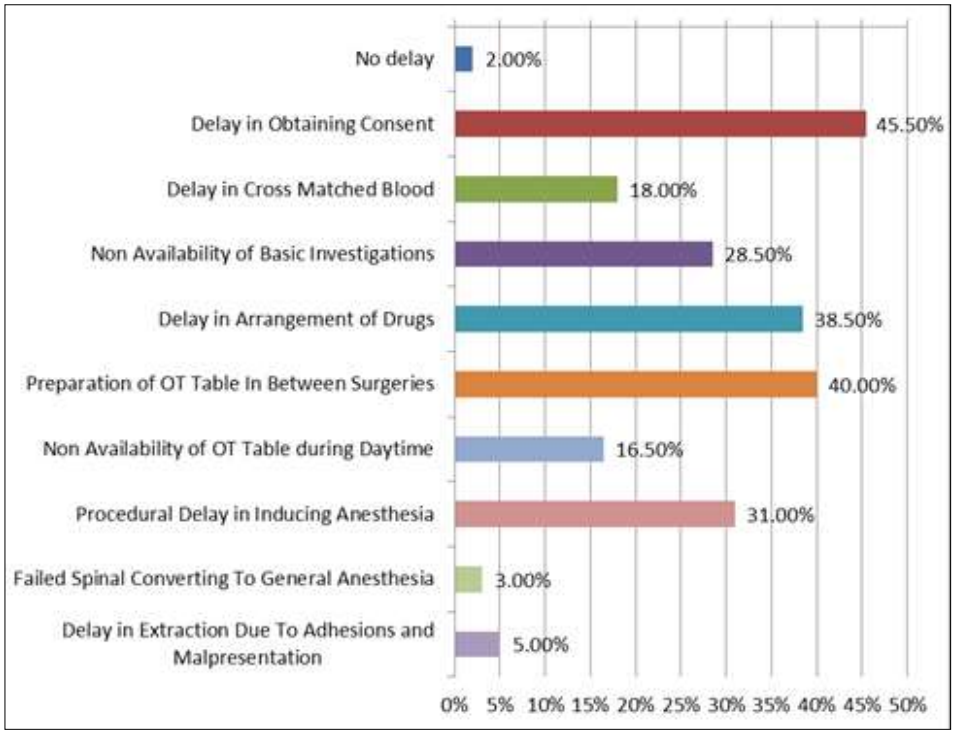

Fig 2: Reasons for delay in performing caesarean section

- Most important factors causing delay in the study were delay in obtaining consent in 91cases (45.5%) and preparation of OT table between surgeries in 80 cases (40%). Delayed referral though cannot be a cause for delay in decision to delivery interval but was considered to account for the cases where maximum damage was done before the decision for caesarean delivery was taken.

Neonatal outcome (At Birth)

In 200 cases included in the study, 145 babies were shifted to mothers side after caesarean delivery, 54 babies were shifted to NICU and 1 was still born.

Table 5: Neonatal outcome at birth among study participants (N=200)

Neonatal outcome	Frequency	Percentage
Mother side	145	72.5%
NICU	54	27%
Still born	1	0.5%

In the study among those with Category 1, 66.7% were admitted to NICU, 30.8% were on mother's side and 2.6% were still born. Among those with Category 2, 30.5% were admitted to NICU, 69.5% were on mother's side and 0% were still born. Among those with Category 3, 3.8% were admitted to NICU, 96.2% were on mother's side and 0% were still born. There was significant association between LSCS category and NICU admission and Mothers side. There was no significant association between Still born and LSCS category.

Table 6: Category wise Neonatal Outcome at birth

		LSCS Category						P value
		1		2		3		
		N	%	N	%	N	%	
NICU	Yes	26	66.7%	25	30.5%	3	3.8%	<0.001*
	No	13	33.3%	57	69.5%	76	96.2%	
Mother's Side	Yes	12	30.8%	57	69.5%	76	96.2%	<0.001*
	No	27	69.2%	25	30.5%	3	3.8%	
Still Born	Yes	1	2.6%	0	0.0%	0	0.0%	0.126
	No	38	97.4%	82	100.0%	79	100.0%	

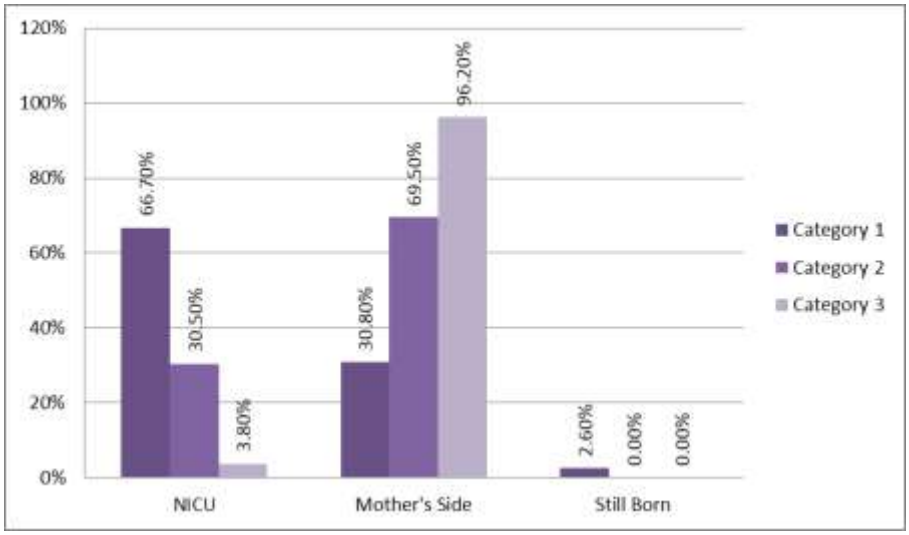

Fig 3: Category wise Neonatal Outcome

Mean DDI for babies admitted to NICU was 55.05±16.47 min and Mean DDI for babies shifted to mother's side was 88.47±26.92 min.

Table 7: Comparison of mean DDI between neonatal outcomes (N=200)

Parameter	Neonatal outcome	
	Mother's side (N=145) Mean ±SD	NICU admission (N=55) Mean ±SD
DDI	88.47 ± 26.92	55.05 ± 16.47

Neonatal outcome (On follow up)

Among 200 cases, 199 babies born alive were followed up during their hospital stay. In 72.86% of cases there were no complications, 24.1% of cases had hypoxic ischemic encephalopathy and 3.01% of cases had sepsis. There were 3 neonatal death among the cases included in the study.

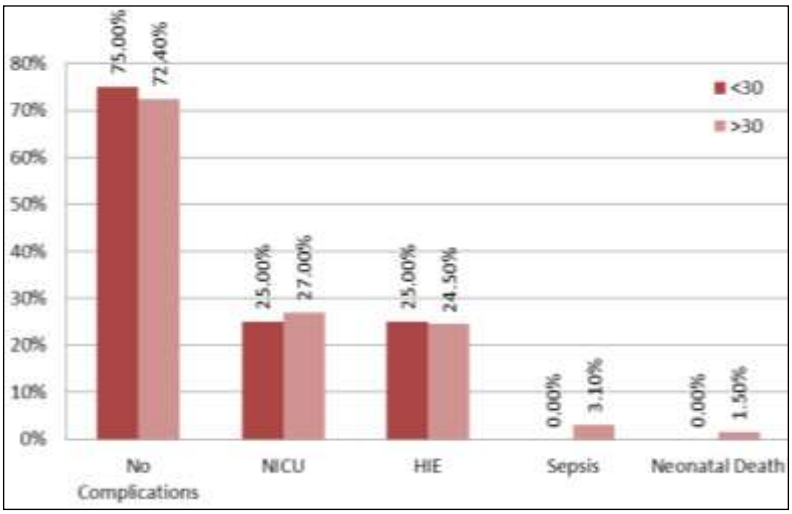

Fig 4: Neonatal outcome (On follow up) among study participants

Table 8: Neonatal outcomes (on follow up) among study participants (N=200)

Neonatal outcome	Frequency	Percentage
No complications	145	72.86%
HIE (any grade)	48	24.1
SEPSIS	6	3.01%
Neonatal death	3	1.5%

Discussion

In general, the consensus has been that hospitals should have the capability of beginning a caesarean delivery within 30 minutes of the decision to operate." This guideline does not establish the 30-minute interval to be a *requirement* but rather a *capability*. The distinction between these two terms is important and we believe this is often overlooked. For example, not being able to perform caesarean delivery within 30 minutes is a common reason that obstetric malpractice claims are perceived to be indefensible. The implication of such perception is that the 30-minute interval is a requirement or standard for acceptable obstetric practice. Intrinsic to this perception is the belief that delivering within 30 minutes necessarily would prevent untoward infant outcomes.

The need for the study was to see if exceeding the 30-minute interval is necessarily an index of substandard obstetric care. We aimed to estimate the ideal "decision to delivery interval" in emergency caesarean delivery for optimal perinatal outcome and the factors causing delay were also evaluated.

Mean age in the study was 25.43±3.644 years. Majority of women were in the age group 26 to 30 years (44%). 81% of women included into study belonged to 21-30 years of age. 53.5% of women were nulliparous and 46.5% were multiparous. 86% of women were in the gestational age 37 to 40 Weeks and 14% were in the gestational age 41 to 42 weeks.

Among 200 participants, 39(19.5%) belonged to category 1, 82(41%) to category 2, and 79(39.5%) to category 3. They were categorized accordingly and their perinatal outcomes were analysed and evaluated with standard literature. This was compared to a study by Gita *et al.* [69]. In which among 275 participants, 146(53.1%) belonged to category 1, 38 (13.82%) to category 2 and 91 (33.1%) to category (3+ 4).

Table 10: Comparision of LSCS Category distribution among subjects with other study

		Present study (%)	Gupta *et al.* [4]	Gita *et al.* [3]
LSCS Category	1	39(19.5)	287(63.7)	146(53.1)
	2	82(41)	166(36.3)	38(13.82)
	3	79(39.5)		Category (3+4) 91(33.1)
Total		200(100)	453(100)	275(100)

The mean DDI for all participants in the study was 79.28±28.66 min, but when it was calculated for each category separately it was 47.23±13.35min, 64.83±11.83 min, 110.1±13 min for category 1, 2 and 3 respectively. The differences in the DDI of caesarean deliveries belonging to different categories were statistically significant.

Table 11: Comparison of mean DDI with other study

Category	Present study	Gupta *et al.* [4]	Gital *et al.* [3]
Category 1	47.23±13.35	36.3±17.2	122.1±89.2
Category2	64.83±11.83	38.1±17.7	183.2±201.8
Category 3	110.1±13		299.8±200.7
Total	79.28±28.66	37.2±17.4	183.6±204.1

Chauleur *et al.* [5], reported the mean DDI of 46.84 min in their study. Mackenzie *et al.* [6], reported a DDI 27.4 minutes for crash caesarean deliveries (impending fetal death), 42.9 minutes for fetal distress and for cases without fetal distress it was 71.1 minutes. In another study by Sayegh *et al.* [7] showed mean DDI for emergency caesarean delivery was 39.5 minutes and for elective cases it was 55.9 minutes. Gita *et al.* [3], reported a mean DDI of 183.6 mins for all participants in the study and 122.1 min, 183.2 min, 299.8 min for category 1, 2 and 3 respectively.

Table 12: Comparison of factors causing delay in DDI with other study

	Present study	Gupta *et al.* [4]	Mishra *et al.* [10]
Delay in Obtaining Consent	45.5%	2.6%	-
Delay in Cross Matched Blood	18.0%	2.2%	1.4%
Non Availability of Basic Investigations	28.5%	-	-
Delay in Arrangement of Drugs	38.5%	2.2%	-
Preparation of OT Table In Between Surgeries	40.0%	22.1%	0.8%
Non Availability of OT Table during Daytime	16.5%	7.5%	39%
Procedural Delay in Inducing Anesthesia	31.0%	13.5%	5.1%
Failed Spinal Converting To General Anesthesia	3.0%	2.4%	-
Delay in Extraction Due To Adhesions and Malpresentation	5.0%	0.9%	1.24%

A mere 4 cases (2%) could be delivered within 30 minutes all of which belonged to category 1 and 58 cases (29%) by 60 minutes. This observation was totally in contrast with the western standards, where in a study by Mackenzie *et al.* [6], approximately 40% emergency caesareans could be completed within 30 minute interval and bloom *et al.* [8], observed 62% of caesarean deliveries for non-reassuring fetal heart rate and 98% of caesarean deliveries for an obstetric accident defined as umbilical cord prolapse, placental abruption or previa, or uterine rupture met the 30-minutes-or-less guideline. Chauleur C *et al.* [5] observed that around 50% patients could be delivered within 30 minute DDI and in the study by Chauhan *et al.* [9], 52% babies with fetal distress could be delivered within 30 minute interval. However Gita *et al.* [3], reported 18% of category I & II cases delivered within 60 minutes and 63% by 120 minutes.

When the preparation step at which delays occurred and the reasons behind the same were analysed, it was observed that maximum delay happened between decision for caesarean delivery & shifting the patient to the OT (Interval 1). Interval 1 accounted for nearly 51% of the entire DDI and the major reasons were delay in obtaining consent in 45.5% and preparation of OT table in between surgeries 40.0%. This delay was inversely proportional to the degree of urgency of the caesarean delivery.

In category 1 caesarean delivery, in 46.15% of the cases the reason for delay was due to time spent in arranging for cross matched blood products in cases of placenta previa, placental abruption or as the patients were immediately unfit (severe anemia, fever, hypotension, DIC etc.) and required some resuscitative measures to withstand anesthesia. In category 2 caesarean delivery, in 47.56 % of the cases the reason for delay was in the waiting for arranging drugs by patient bystanders. In category 3, in 83.4% cases delay due to nonavailability of Patient bystanders for obtaining consent and in 67.08% delay in preparation of OT table between surgeries.

Gita *et al.* [3], reported maximum delay happened between decision for caesarean delivery & shifting the patient to the OT (Interval 1). Interval 1 accounted for nearly 72% of the entire DDI and the major reason was non availability of OT in 166 cases (73.5%). In 40 cases (15%), the delay was inevitable as the patients were immediately unfit and required some resuscitative

measures to withstand anaesthesia. Nearly 78% patients in this group belonged to category I & II.

Sayegh *et al.* [7], reported observed that the maximum delay occurred in shifting the patient to the operation theatre and the delay was mainly due to non-availability of operation theatres. This delay was inversely proportional to the urgency of caesarean section, the lowest was for category I caesarean deliveries (76.47 min) and the highest was for category IV (753 minutes).

The present study specifically looked at the effect of DDI on neonatal outcome using APGAR scores, no of stillborn, need for admission into NICU, duration of NICU stay development of complications like HIE, sepsis and neonatal death. In the study, 27% of neonates were shifted to NICU and 0.5% were stillborn. 66.7% of neonates admitted to NICU belonged to category 1 caesarean delivery. One stillborn belonged to category 1 caesarean delivery. When admission to NICU among neonates with DDI≤30 min and neonates with DDI>30 min was compared with neonates not admitted to NICU, the difference was not statistically significant.

Gita *et al.* [3] reported there were no complications in 130 babies, 141 were admitted to NICU and 9 perinatal deaths (One case admitted with intrauterine death, 3 fetal deaths occurred while waiting for LSCS and 5 neonatal death). When degree of asphyxia or presence or absence of neonatal complications was correlated with the mean DDI in category I & II caesareans, it was found that when the mean DDI exceeded 75 minutes, there was a 4.6 fold increase in the risk to the life of neonate. Since, the number of cases with a mean DDI of ≤30 minutes was only 5, risk reduction in neonatal complication could not be assessed statistically, but all those babies were shifted mother side with no neonatal complications. 8 babies who expired had a DDI of > 75 min.

Table 13: Comparison of neonatal outcome with other study

	Present study	**Gita *et al.* [3]**	**Mishra *et al.* [10]**	**Gupta *et al.* [4]**
No complications	145 (72.5%)	130 (47.27%)	390 (81.25%)	378 (83.44%)
NICU admission	54 (27%)	141(51.27%)	86 (17.91%)	51 (11.3%)
Still birth	1 (0.5%)	4 (1.45%)	4 (0.83%)	24 (5.3%)
Neonatal death	3 (1.5%)	5 (1.85%)	41(8.6%)	23 (5.1%)

Mean DDI for babies admitted to NICU was 55.05±16.47 min and Mean DDI for babies shifted to mother's side was 88.47±26.92 min.

Similar results were seen by Bloom *et al.* [8], where decision-to-incision intervals of 30 minutes or less were significantly associated with higher rates of fetal acidemia and need for intubation in the delivery room. Of 538 infants with indications for emergency caesarean delivery who delivered more than 30 minutes after the decision to operate, 95% did not experience any adverse outcomes. This paradoxical result could be explained based on the fact that obstetricians prioritized the cases where fetus was more at danger to be delivered within 30 mins and hence the incidence of complications was more in these cases.

I Z. MacKenzie *et al.* [6], reported an important finding of a trend of improving cord arterial pH values with more prolonged time from decision-to-delivery which was observed for deliveries with and without fetal distress, although the values were less acidotic among the latter babies. It is hard to explain the lower values found in the non-distressed babies born with short time from decision-to-delivery.

One baby with cord prolapse, in the present study, was delivered within 30 minute interval. Thus one can conclude that achieving a DDI of 30 minutes is not an impossible task and it highly depends on the prioritization of the emergency by the treating obstetrician and rest of the team involved.

One neonate which was delivered within 30 mins for obstructed labor had APGAR<7 at birth and had HIE stage 3. This shows having a DDI<30 min doesn't ensure good neonatal outcome.

Limitations of Study

- It was an observational study. A more definitive study design was not possible because patients obviously could not be randomly assigned to delivery before or after the 30-minute time point.
- This study was performed in a rural tertiary centre with referral cases where counseling and obtaining consent from patient bystanders for operation is difficult, due to lack of awareness about patient condition.

Conclusion

The present study concludes that most important factors causing delay were obtaining consent from patient bystanders and preparation of OT table in between the surgeries. In category 1 caesarean deliveries, the delay was due to time spent for arranging cross matched blood products especially in cases of antepartum hemorrhage. Neonatal outcomes did not differ significantly in between those caesarean deliveries with DDI≤30 minutes and those with DDI>30 minutes.

It can be safely said that DDI <30 minutes was not essential for optimal neonatal outcome. From the present study, it is obvious that it is difficult to achieve 30 minute goal in every emergency caesarean delivery and it is also not an indispensible measure to prevent neonatal morbidities. But as observed in the study, DDI of 30 minutes is not unachievable in case of urgent indications like cord prolapse. Hence it is necessary for each emergency obstetric unit, to effectively triage emergency caesarean deliveries and develop the capability of commencing such cases as fast as possible.

References

1. Chukwudi OE, Okonkwo CA. Decision-delivery internal and perinatal outcome of emergency ceasarian sections at tertiary institution. Pak J Med Sci 2014;30:946-50.
2. National Institute for Health and Clinical Excellence. CG132 Cesarean Section. Clinical Guidelines for Emergency CS. Available from: http://www.guidance.nice.org.uk/CG132. [Last accessed on 2016 Jul 23].
3. Radhakrishna G, Yadav G, Neelam B, Ali H. Factors affecting decision to delivery interval in emergency caesarean sections in a tertiary care hospital. Int Report Contracept Obstet Gynecol, 2013, 651-656.
4. Gupta S, Naithani U. Evaluation of decision-delivery-interval in emergency caesarean section. J Anaesthesiol Clin Pharmacol 2017;33(1):64-70.
5. Chauleur C, Collet F, Furtos C, Nourissat A, Seffert P, Chauvin F. Identification of factors influencing the decision-delivery interval in emergency lscs. Gynaecologic and obstetric investigation 2009;8(4).
6. Mackenzie IZ, Cooke I. What is a reasonable time from decision-to delivery by caesarean section? Evidence from 415 deliveries. An International J Obstet and Gynaecol (BJOG) 2002;109(5):498-504.
7. Sayegh I *et al.* Evaluating the decision to delivery interval in emergency caesarean sections. European J Obstets Gynaecol

& Reproductive Biology 2004;116(1):28-33.
8. Bloom Steven L, Leveno MD, Kenneth J MD, Spong Catherine Y, Gilbert MD, Sharon MS *et al.* Decision to incision time and maternal and infant outcome. American college of obstetricians and gynecologists, edition 2006;108(1):6-11.
9. Chauhan SP. Caesarean Section for Suspected Fetal Distress. Does the decision delivery time make a difference? J Reprod Med 1997;42(6):347-52.
10. Mishra N, Gupta R, Singh N. Decision Delivery Interval in Emergency and Urgent Caesarean Sections: Need to Reconsider the Recommendations? The Journal of Obstetrics and Gynecology of India 2017;68(1):1-7.