

## STUDY OF MATERNAL DETERMINANTS IN FULL DILATION OF CAESAREAN SECTION IN ANDHRA PRADESH POPULATION

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Received : 25/05/2023  
Received in revised form : 21/06/2023  
Accepted : 04/07/2023

**Keywords:**

Full dilatation of caesarean section (FDCS), second stage CS, Obstetric score, delivery of head.

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DOI: 10.47009/jamp.2023.5.4.46

Source of Support: Nil,  
Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2023; 5 (4); 223-226



### Abstract

**Background:** Caesarean section (c-section) is a major obstetric intervention for saving the lives of women and their newborns from pregnancy- and childbirth-related complications. Hence, full cervical dilatation caesarean section is a technically more challenging procedure than CS in early labour. **Materials and Methods:** Out of 52 pregnant women, 19 cases had a full dilatation caesarean section (FDCS) and were classified as group-I, 33 cases underwent a primary caesarean section in the first stage of labour and were classified as controlled or normal group, i.e., group-II. The duration of surgery was measured as the time elapsed between the skin incision and skin closure. **Result:** Comparison of mean characteristics of groups, obstetric score and method of delivery of the head in two groups had a significant p value ( $p < 0.001$ ). **Conclusion:** In the present pragmatic study, it is concluded that decision-making in second stage caesarean sections is often challenging and must be operated meticulously and more efficiently to avoid morbidity and mortality of both mother and fetus.

## INTRODUCTION

Decision making surrounding caesarean section (CS) in the second stage of labour is one of the great challenges in today's obstetric practise. This technically difficult procedure is often performed after an unsuccessful instrumental delivery with the foetus' head deeply impacted in the maternal pelvis. It is associated with an increased risk of maternal and neonatal morbidity.<sup>[1]</sup>

The reasons for the increasing rate of CS are multifactorial; CS is now considered a safe option for childbirth due to advances in anaesthesia and the availability of thromboprophylaxis and antibiotics.<sup>[2]</sup> The art of skilled and safe operative vaginal delivery has declined considerably. It has reduced from 28% to 5% globally,<sup>[3,4]</sup> and forceps are now rarely used. The lack of direct supervision, reduced working hours per week are great hindrances for junior obstetricians to acquire efficiency in CS in labour, which lead to difficulty in determining the rate of CS during the second stage of labour and the risks associated with maternal and neonatal morbidity and mortality; hence, an attempt, was made to evaluate the factors associated with decision-making during CS section in the second stage of labour.

## MATERIALS AND METHODS

52 (fifty-two) patients admitted to the obstetrics and gynaecology ward of Nimra Institute of Medical

Sciences, IbrahimPatnam Jupidi Hospital, Vijaywada, Andhra Pradesh-521456, were studied.

### Inclusive Criteria

Women with a singleton foetus with vertex presentation, including primigravida and multi-gravida with previous vaginal delivery. Gestational age was  $> 37$  weeks, and women with spontaneous and induced labour pains.

### Exclusion Criteria

Women associated with obstetric complications (preeclampsia and type II diabetes mellitus) Women with major foetal structures or chromosomal abnormalities. Pregnancies with an abnormal placenta or a malpositioned placenta. Pregnancies  $< 37$  weeks (preterm) of gestation were excluded from the study.

**Method:** Out of 52, 19 (nineteen) patients were grouped in full dilatation caesarean section (FDCS) and studied as group-I.

33 (thirty three) women in the normal or controlled group who have undergone primary caesarean action in the first stage of labour were studied as group-II. Detailed history of both groups' related to obstetrics was noted. The majority of the women belonged to middle socio-economic status. Indications of caesarean delivery and birth weight of the foetus in both groups were also noted. The duration of surgery is measured and defined as the time elapsed between the skin incision and skin closure.

The duration of the study is April 2022 to May 2023.

## Statistical Analysis

The obtained parameters between groups I and II were compared with the t test value and the chi-square value. The statistical analysis was carried out in SPSS software.

## RESULTS

[Table 1] Comparison of mean characters in both groups

- Maternal weight (kg) – 67.72 ( $\pm$  3.5) in group-I (FDCS) and 60.40 ( $\pm$  2.8) in group-II, t test was 7.79 and  $p < 0.001$
- Mean duration of surgery (in minutes) 74.22 ( $\pm$  5.2) in group-I, 55.60 ( $\pm$  3.5) in group-II, t test was 13.7 and  $p < 0.001$
- Mean birth of weight of foetus (grams) – 33.18 ( $\pm$  2.5) in group-I, 29.68 ( $\pm$  1.6) in group-II, t test was 54.80 and  $p < 0.001$
- Mean duration of hospital stay 8.03 ( $\pm$  2.0) in group-I, 6.28 ( $\pm$  1.5) in group-II, t test was 3.05 and  $p < 0.001$

[Table 2] Comparison of obstetrics score and FDC

- Prima gravida – 14 (73.6%) in group-I and 15 (45.4%) in group-II
- Multi gravida – 4 (2.40%) in group-I and 16 (48.4%) in group-II
- In grand multi – 1 (5.2%) in group-I and 2 (6.0%) in group-II, chi-square 5.23 and  $p < 0.03$

[Table 3] Comparative study of indication in full dilatation caesarean (FDCS) and first stage caesarean section.

### Group 1

- Arrest descent 11
- Failed vacuum 2
- Mal-position 4
- NRFHR observed 2

### Group-II

- Non-progressive labour 12
- Non-reactive foetal heart rate 11
- NRFHR Me-conium stained amniotic fluid (MSAF)=5
- arrest of dilatation =1,
- Impending eclampsia = 1, ARH=1, COMA=1
- FGR with abnormal Doppler=1

**Table 1: Comparison of characteristics of both groups**

Variables	Groups		t test	p value
	Group-I (FDCS)	Group-II First stage		
Mean Age in years	25.15 ( $\pm$ 2.5)	26.24 ( $\pm$ 2.8)	14	$p > 0.15$
Maternal weight (Kg)	67.72 ( $\pm$ 3.5)	60.40 ( $\pm$ 2.8)	7.79	$P < 0.001$
Gestational age in weeks	39.06 ( $\pm$ 1.5)	38.70 ( $\pm$ 1.2)	0.89	$p > 0.38$
Mean duration of surgery in minutes	74.02 ( $\pm$ 5.2)	55.60 ( $\pm$ 3.5)	13.7	$P < 0.001$
Mean Birth weight (grams)	33.18 ( $\pm$ 2.5)	29.68 ( $\pm$ 1.6)	54.80	$P < 0.001$
Mean duration of hospital	3.03 ( $\pm$ 2.3)	6.23 ( $\pm$ 1.5)	3.05	$P < 0.005$

**Table 2: Comparison of obstetrics score and FDC**

Variables	Group-I FDC-19	Group-II First stage caesarean section No-33	p value
Prima gravida	14 ( $\pm$ 73.6)	15 ( $\pm$ 45.4)	$P < 0.02$
Multi gravida	4 (21.0)	16 ( $\pm$ 48.4)	
Grand multi	1 ( $\pm$ 5.2)	2 ( $\pm$ 6.0)	

$P < 0.02$  p value is highly significant chi-square value 5.23

**Table 3: Comparative study of indication of caesarean (FDCS) and First stage caesarean section**

Indication of caesarean delivery	Full dilatation caesarean No-19	First Stage No-33
Arrest of descent	11 (57.8%)	
Failed vacuum	2 (10.5%)	
Arrest of descent Mal position	4 (21%)	
Arrest of descent NRPHR	2 (10.5%)	
Non-progressive labour		11 (33.3%)
Non reasoning Foetal heart rate NRFHR		12 (36.3%)
MSAF		5 (15.1%)
Arrest of dilatation		1 (3%)
Impending eclampsia		1 (3%)
Arte partum Haemorrhage APH		1 (3%)
CDMR with abnormal Doppler		1 (3%)
Compound presentation		-

MSAF = Meconium-stained Amniotic fluid, CDMR = Caesarean delivery maternal reaction, DFR = Foetal growth Retardation

**Table 4: Method of delivery of Head in two groups**

Method of delivery of Head	Group I FPCS No-19	Group-II First stage No-33	p value
Without difficulty	6 (31.5%)	33 (100%)	$P < 0.01$
pushing from below	3 (15.7%)	0	
Patwardhan method	7 (136.8%)	0	
Breech method	3 (15.7%)	0	

[Table 4] Comparison of method of delivery of head in groups

Without difficulty 6 (31.5%) in group-I (FDCS) and 33 (100%) in group-II, 3 (15.7%) pushing from below, 7 (36.8%) patwardhan method, 3 (15.7%) breech method, chi-square value 28.85 and  $p < 0.001$

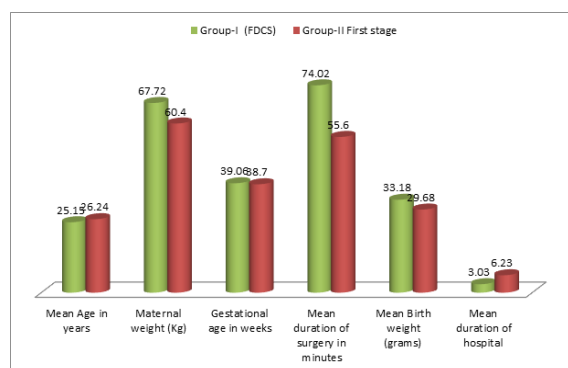


Figure 1: Comparison of characteristics of both groups

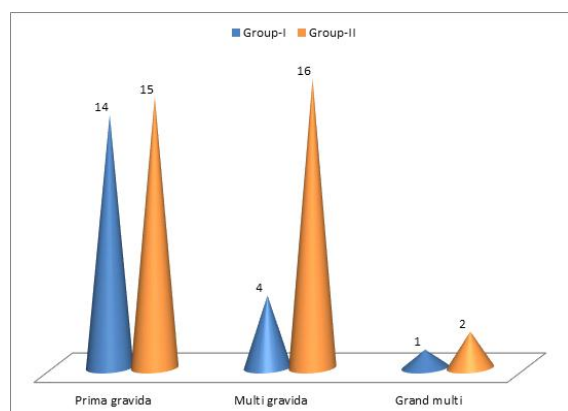


Figure 2: Comparison of obstetrics score and FDC

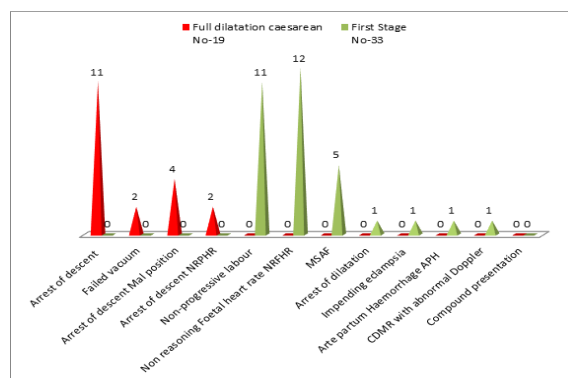


Figure 3: Comparative study of indication of caesarean (FDCS) and First stage caesarean section

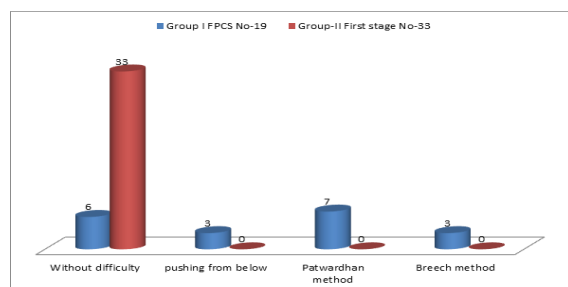


Figure 4: Method of delivery of Head in two groups

## DISCUSSION

Present study of maternal determinants of FDCS in the Andhra Pradesh population. Out of 52 pregnant women, 19 had FDCS and were classified as group I, and 33 had normal spontaneous C-S deliveries and were grouped as group II. The duration of surgery was measured as the time elapsed between skin incision and skin closure. The mean characters were compared. The maternal weight was 67.72 ( $\pm 13.5$ ) in group I and 60.40 ( $\pm 2.8$ ) in group II; the t test was 7.79 and  $p < 0.01$ . The mean duration of surgery was (in minutes) 74.02 ( $\pm 5.2$ ) in group-I, 55.60 ( $\pm 3.8$ ) in group II, and, t test value was 13.7 and  $p < 0.001$ . In mean birth weight of the foetus (grams), 33.18 ( $\pm 2.5$ ) in group I and 29.68 ( $\pm 1.6$ ) in group II, the t test was 54.89 and  $p < 0.001$ . The mean duration of hospital stay was 8.03 ( $\pm 2.3$ ) in group I and 6.28 ( $\pm 1.5$ ) in group II; the t test value was 3.05 and  $p < 0.005$  [Table 1]. In the comparative study, obstetrics scores and FOC prima gravida – 14 (73.6%) in group-I, 15 (45.4%) in group-II, multi gravida 4 (21%) in group-I, 16 (48%) in group II, and grand multi 1 (5.2%) in group I and 2 (6%) in group-II [Table 2]. Indication of caesarean (FDCS) section had 11 (57.8%) arrest of descent, 2 (10.5%) arrest of descent, 2 (10.5%) failed vacuum, 4 (21%) arrest of mal-position, 2 (10.5%) arrest of descent NRFHR in group-I, but in ( first stage caesarean) group-II had 11 (33.3%) non-progressive labour, 12 (36.3%) non-reasoning foetal heart rate NRFHR, 5 (15%) had MSAF, 1 (3%) had arrest of dilatation, 1 (3%) had impending eclampsia, 1 (3%) had APH, 1 (3%) had CDMR, 1 (3%) had FGR with abnormal Doppler [Table 3]. In the study of the method of delivery of the head in both groups without difficulty, 6 (31.5%) in group I and 33 (100%) in group II used 3 (15.7%) pushing from below, 7 (36.8%) patwardhan methods, and 3 (15.7%) breech methods [Table 4]. These findings are more or less in agreement with previous studies.<sup>[5-7]</sup>

Despite many concerns raised over the rising rate of CS, little attention has been paid to the increasing rate of CS during the second stage, It is reported that, there is a trend for rising rates of CS full dilatation in the second stage from 1.4% to 2% in different parts of the world.<sup>[8]</sup>

These deliveries are practically challenging and need to be attended to by a skilled obstetrician. Maternal morbidity associated with these difficult deliveries includes the risk of bladder trauma and extension of the uterine angle leading to broad ligament haematoma.<sup>[9]</sup> Postpartum haemorrhage and prolonged hospital stays cause economic and physical burdens on the patients because they require blood transfusions.

Avoidance of the first CS in a woman's life minimises the risk in subsequent pregnancies and increases the chance of a normal vaginal birth thereafter.<sup>[10]</sup>

Judicious use of oxytocin after careful assessment of the frequency of contraction and position of the foetus' head might lead to an improved rate of vaginal deliveries. In the present study, it was realised that, increase in second stage CS had decreased the success of instrumental deliveries, which is a worrying trend and requires urgent action.

## CONCLUSION

The present study of maternal determinants in FDSC, decision making during the second stage (FDSC) is after a skilled obstetrician's opinion, regarding stability and safety for the trial of instrumental delivery.

The present clinical study demands further pathophysiological, genetic, nutritional, and environmental studies because the exact mechanism and factors of contraction of the uterus during delivery are still unclear.

### Limitation of study

Owing to the tertiary location of the present hospital, the small number of patients, and the lack of the latest instruments, we have limited results.

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