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## ORIGINAL ARTICLE

### Elective caesarean section at 38 or $\geq$ 39 Gestational weeks

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[hala\\_sherif@ymail.com](mailto:hala_sherif@ymail.com)**Submit Date** 2020-09-02  
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**Accept Date** 2020-09-28**ABSTRACT****Background:** Elective caesarean section is an operative procedure, which is done at an arranged time prior to the expected date of delivery and before the onset of labor. Gestational age at which the elective caesarean section will be done plays a vital role in neonatal respiratory outcome.**Objectives:** To evaluate the neonatal outcome in booked cesarean sections at 38 and  $\geq$ 39 gestational weeks in low-risk pregnant women.**Methods:** This is a prospective clinical study done on 400 pregnant women who underwent elective caesarean section from June 2019 to February 2020. Group (1) with gestational age 38 -38weeks+6 days and Group (2) with gestational age 39-39 weeks+6days. The neonates were assessed in terms of; respiratory distress syndrome (RDS), transient tachypnea of the newborn (TTN), need to be admitted at NICU, birth weight and Apgar score at the first and fifth minute.**Results:** Neonatal birth weight and Apgar score at minute one were significantly higher in neonates born at  $\geq$ 39 gestational weeks but NICU admission was significantly lesser in comparison with neonates born between 38–39 gestational weeks. No statistic differences were established in neonates of both groups in the incidence of Transient tachypnea of new born (TTN) or Respiratory distress syndrome (RDS)**Conclusion:** Elective CS at  $\geq$  39 weeks' gestation is associated with a lesser rate of NICU admission and more good neonatal birth weight and Apgar score at one minute than neonate born by elective CS between 38-39 gestational weeks.**Key words:** elective, cesarean section, timing, neonatal morbidity, neonatal outcome.**INTRODUCTION**

Elective caesarean section is an operative procedure, which is done at an arranged time prior to the expected date of delivery and before the onset of labor [1]. Gestational age at which the elective caesarean section will be done plays a vital role in neonatal respiratory outcome. On behalf of Four decades, It was supposed that fetal maturity could be accomplished at the completion of 37 gestational weeks, so It was "the term pregnancy" from that time ahead [2]. But, it was found that respiratory complications of neonate still present equal in this gestational age and could decline with upsurge in the gestational age to 39 weeks [3]. Lately, "the term pregnancy" has altered to three classes: (37–38 weeks + 6 days) premature term, (39–40 weeks +6 days) full term and (41–41 weeks + 6 days) late term [4]. ACOG expected that maternal request for elective caesarean delivery without any reason represent about 2.5% of all births in the United States. Also they proved that

respiratory distress syndrome, transient tachypnea of new born are more in elective LSCS before 39 weeks [5]. Many professionals recommended that programmed cesarean delivery may be steered from 39 weeks onwards to assist complete fetal maturity [6].

Consequently, the aim of this study is to compare the outcomes of neonates born by elective CS between 38 and 39 and equal or more than 39 gestational weeks to realize fitting gestational age at which elective LSCS can be done with the best outcome.

**PATIENTS AND METHODS**

This prospective observational study was directed at Zagazig university hospital (Zagazig, Egypt) from June 2019 to February 2020. All participants were pregnant women with single baby,  $\geq$  38 weeks (but less than 39) or  $\geq$ 39 weeks, whom were booked for elective caesarean section. The protocol of research study was approved by the Ethical Research Committee of faculty of medicine

Zagazig University. All participants of the study gave an informed consent. The work described has been carried out in accordance with The Code of Ethics of the World Medical association (Declaration of Helsinki).

The exclusion criteria were pregnant women less than 38 gestational weeks, multiple pregnancy, chronic maternal diseases, preeclampsia, gestational diabetes. Emergency CS due to any maternal or fetal causes and repeated CS with intrauterine fetal death were also excluded. All women underwent booked CS under spinal anesthesia and divided into two groups depending on gestational age. Group (1) with gestational age 38 -38weeks+6 days and Group (2) with gestational age 39-39 weeks+6days. Determination of gestational age was based on the date of the last menstrual period (LMP) in addition to at least one first trimester ultrasonography report, each group comprised of 200 women. Neonatal outcome measures assessed: Neonatal weight, Apgar score at 1 and 5 minutes, transient tachypnea of newborn TTN, respiratory distress syndrome RDS and NICU admissions.

Statistical methods:

The collected data were studied using the Statistical Package for the Social Sciences SPSS version 21 (SPSS Inc, Chicago, IL, USA). Categorical and continuous variables are expressed as number (percentage) and mean ± (standard deviation), respectively.

The neonatal outcome variables: Apgar score, transient tachypnea of newborn TTN, respiratory distress syndrome NICU admission were computed for frequency and percentage and analyzed by chi-square test or fisher exact test. A difference was statistically reflected significant when the p value was less than 0.05.

**Table: 1 demographic characters of participants:**

Variables	Elective CS at 38 wks to 38wks+6d { N=200 }	Elective CS at 39 wks to 39wks +6d { N=200 }	P Value
Maternal age (year)	25.68 ± (4.17)	25.57 ± (4.63)	0.062
<b>Indications of elective CS</b>			
Repeated CS	53% 106	47% 94	0.02
Breach or transverse presentation	7% 14	13% 26	0.01
Cephalopelvic Disproportion (CPD)	4% 8	6% 12	0,04
Maternal request	25% 50	34% 68	0.01

Values given as mean ± SD(standard deviation), or number (percentage % )  
P value <0.05 is significant.

## RESULTS

patients were signed up according to the inclusion and exclusion criteria. 200 women delivered by Elective CS at 38wks to 38wks +6days (Group 1) and 200 women delivered by Elective CS at 39wks to 39wks +6 days (Group 2). The mean ± (SD) age of (Group 1) was 25.68 ± (4.17) years, and 25.57 ± (4.63) years, in (Group 2) with no significant difference between both groups (P Value 0.062 ), (Table 1).

Indications were repeated CS in 64% in Group (1) and 47% in Group (2) breech presentation in 7 % in (group 1), 13 % (Group 2) cephalopelvic disproportion in 4 %

( G 1) and 6% ( G 2), maternal requested CS in 25% ( G 1) and 34% (G 2), (Table 1) Repeated CS was more frequent in G1 matched with G2 with significant difference { P value 0.02 }. Breech presentation , cephalopelvic disproportion (CPD) and maternal request were more in G2 in comparison with G1 with{ p -value 0.01 ,0.04 and0.01 } respectively. (Table 1) . As regard the neonatal outcome, the neonates of G2 had weigh significantly higher than neonates of G1 P value ( 0.01). Neonatal Apgar score of G2 at one minute was higher in comparison to that of neonates of G1with significant difference between them ( P Value 0.04). But, Apgar score at 5-minutes was statistically insignificant different between both groups. Insignificant differences were found as regard the incidence of neonatal transient tachypnea (TTN ) or respiratory distress syndrome (RDS) in both groups. There was significant differences between both groups as regard to the incidence of NICU admission as it was higher in G1 ( p-value 0.02). ( Table 2 )

**Table2: Neonatal outcome:**

Parameter	Elective CS at 38 wks to 38wks +6d { N=200 }		Elective CS at 39 wks to 39wks +6d { N=200 }		P Value
Neonatal birth weight	3034.65 ± (299 )		3158.78 ± (312 )		0.0 1
Apgar min 1	8.72± (0.32)		8.77± (0.24)		0.04
Apgar min 5	9.87± (0.21)		9.97± (0.04)		0.62
Transient tachypnea of new born (TTN)	4	2%	2	1%	0.24
Respiratory distress syndrome (RDS)	2	1%	1	0.5%	0.31
NICU admission	6	3%	1	0.5%	0.02

Values given as mean ± SD(standard deviation), or number (percentage % )

P value <0.05 is significant

**DISCUSSION**

Caesarean section deliveries is increasing all over the world in both developing and developed countries [7]. The appropriate gestational age for scheduled cesarean section (CS) has become a topic of interest in prenatal care [8]. In the present study, the demographic criteria were not significantly different between both groups either in age or in the parity. This agreed with results of *Sebastian G et al.* [9] but disagreed with *Emily Doan et al* [10] who observed in their study that there were 30% primigravida and 70% multigravida. And *Glavind et al* [11] only 20 % were primigravida and rest were multigravida. About the indication for elective CS, the repeated Cesarean delivery is significantly high in patients delivered at 38–39 gestational weeks but Breech or transverse presentation , Cephalopelvic disproportion (CPD) and maternal request are significantly high as an indication in patients delivered at ≥ 39 gestational weeks. This is compatible with results of *Pirjani et al* [12] who is contracting also with us as regard neonatal birth weight and Apgar score as the current study showed there is significant difference as regard neonatal birth weight in neonates born between 38-39 and those born ≥ 39 gestational weeks as birth weight is increasing with increasing gestational age, Apgar score was improving with increasing gestational age . *Chiossi et al*[13] and *Okeke et al* [14]in their studies detected that the danger of low Apgar score decline with the increase in gestational age and this settled with the current one. This study presented that both elective CS deliveries between 38 to 39 and ≥ 39 gestational weeks have near rate of Transient tachypnea of new born (TTN ) and Respiratory distress syndrome (RDS). This agree with study of *Pirjani et al* 2018 [12] as regard the Respiratory distress syndrome (RDS) but not about TTN as they showed increase the rate in neonates born in between 38 to 39 gestational weeks. Also they

found increase rate of NICU admission through neonates born by elective CS between 38to 39 gestational weeks with significant difference in comparison with those born ≥ 39 gestational weeks and this agreed with the current results. The current study also agreed with the study of *Matsuo et al* [15] who found that neonatal respiratory complications (RDS and TTN) were similar in both groups . But, *Ghartey et al* and *Robinson et al*, revealed that the chance of transient tachypnea of newborn decreases with increase in gestational age [16, 17]. *Phaloprakarn et al* [18] through their retrospective study also agreed with the results of the current study about (RDS and TTN) as they revealed no statistically significant difference in neonates of both groups but disagreed about NICU admission as they found no differences but the present study revealed significant difference with the higher rate in neonates of group (1)who delivered between 38-39 gestational weeks. Moreover, utmost studies on Caucasian and mainly white women have showed better neonatal outcome in planned cesarean deliveries after 39 gestational weeks [1].

**CONCLUSION**

Elective CS at ≥ 39 weeks gestation is associated with a lesser rate of NICU admission and more good neonatal birth weight and Apgar score at one minute than neonates born by elective CS between 38-39 gestational weeks. According to our results we recommend but could not establish that the booked caesarean section have to be achieved at or after 39 gestational weeks exactly. We advise the need of more studies on this topic to conclude the accurate time of elective CS .

**CONFLICTS OF INTEREST**

Author declare that they have no conflicts of interest.

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