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Research article

The Outcome of Spontaneous Vaginal Delivery Immediately After Previous Cesarean Sections

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ABSTRACT

Background and aims. *Women undergoing cesarean section have a higher morbidity and mortality rate than those having vaginal birth. Overall, morbidity and mortality rates secondary to the Trial of Labor After Cesarean (TOLAC) are less than those of repeated cesarean sections. It has long been accepted that TOLAC is a safe and acceptable option for women with previous cesarean section. This study was aimed to investigate the delivery outcome for women who candidate to a trial of spontaneous vaginal delivery immediately after previous cesarean delivery.* ***Methods****. A retrospective study was carried out in EL-Beida medical center. This study was from first January to thirtieth June in 2020, including a total of 100 patients with previous cesarean section and that were candidates for attempted vaginal birth.* ***Results****. Vaginal birth after cesarean section rate among women with previous cesarean section was 68%. Remaining had repeated cesarean delivery (32%). There was a positive correlation between the age, parity, Bishop score, fetal weight and the mode of delivery, P value (0.056, 0.216, 0.241, 0.151, respectively).* ***Conclusions****. The current results fond that age, Bishop score, birth weight, previous vaginal birth, should be considered as factors related to the success of VBAC. Our results are important for women who are pregnant or are planning to become pregnant after a previous CS.*

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INTRODUCTION

Women undergoing cesarean section have a higher morbidity and mortality rate than those having vaginal birth, such as massive postpartum hemorrhage, need for blood transfusion, anesthesia-associated complications, surgical risks (intestinal obstruction, wound dehiscence, wound scars, infection, etc.), and obstetric complications in subsequent pregnancies [1]. Overall, morbidity and mortality rates secondary to The Trial of Labor After Cesarean (TOLAC) are less than those of repeated cesarean sections. It has long been accepted that TOLAC is a safe and acceptable option for women with previous cesarean section [1,2]. According to the American College of Obstetricians and Gynecologists (ACOG), most women with one previous cesarean delivery and a low-transverse incision are candidates of TOLAC and should be counseled about TOLAC and offered a trial of labor [1].

Recently, with the dramatic increase in the rate of cesarean deliveries worldwide, several attempts have been made to reduce this rate, including trial of labor after cesarean delivery (TOLAC). However, TOLAC has a minimal risk of uterine rupture with a rate of 0.2–0.8% [1], but such a risk can be prevented by close observation and adhering to the standard guideline. Overall, morbidity and mortality rates secondary to TOLAC are less than those of repeated cesarean sections.

It has long been accepted that TOLAC is a safe and acceptable option for women with previous cesarean section [1,2]. The trial of labor after cesarean (TOLAC) is an attempt to reduce CS rates. Several national medical associations have provided practice guidelines for vaginal birth after cesarean section (VBAC) [3,4]. Generally speaking, VBAC is relatively safe when compared with repeat CS [5]. However, TOLAC rates have dropped significantly worldwide in recent years [6,7]. For women with a prior cesarean delivery, a trial of labor will often represent her last opportunity to experience a normal birth. However, a failed VBAC increases the risk of maternal and perinatal complications more than an elective repeat CS [8]. Therefore, we conducted this study to determine the effectiveness of trials of labor after cesarean section (TOLAC) and the factors associated with its success.

METHODS

Study design and patients

A retrospective study was carried out in EL-Beida medical center, including a total of 100 hundred patients who underwent caesarean section in the previous delivery during the period from 1st Jan to 30th June in 2020. The inclusion criteria were; singleton term pregnancy with cephalic presentation, previous one cesarean delivery, and that were candidates for attempted vaginal birth. While, the exclusion criteria were; women with more than one previous cesarean delivery, known previous classical uterine incision or T-incision, prior uterine rupture, or extensive transfundal uterine surgery, multiple gestations, and those in whom vaginal delivery is otherwise contraindicated (e.g, those with placenta previa) and fetal macrosomia. This study was reviewed and ethically approved by the hospital ethical committee.

Statistical analysis

Data were collected, tabulated, and statistically analyzed using a SPSS version 2020 program. To analyze the descriptive statistics, we used arithmetic mean, SD, percentage. Correlation was done with variables: maternal age, previous vaginal deliveries, bishop score, fetal birth weight. P values at 0.05 were considered as significant.

RESULTS

One hundred patients who underwent caesarean section in the previous delivery were included in this study (Table 1). VBAC rate among women with previous cesarean section was 68% (68 cases). Remaining had repeated cesarean delivery (32%) (Table 2).

Table 1. The rate of VBAC and cesarean section among women with previous cesarean section

Delivery mode	Frequency	Percent	Valid Percent	Cumulative Percent
normal	68	68.0	68.0	68.0
cesarian	32	32.0	32.0	100.0
Total	100	100.0	100.0	-

Table 2. Descriptive Statistics

Variables	Mean	Std. Deviation	N
No of deliveries	2.0500	.75712	100
Mode of delivery	1.3200	.46883	100
Gravida	3.1500	.77035	100
|Age of mother	32.1700	5.20306	100
Gestational age	38.9500	.91425	100
bishop score	6.2500	2.02696	100
Fetal weight	3.7880	3.47532	100

Correlation between the mode of delivery and Age

Table 3 shows the correlation of delivery mode with different variables. There was a positive correlation between the age and the mode of delivery, as noticed by increase the age of mother accompanied by decrease the chance of vaginal delivery (P =0.056). While, there was a negative correlation between parity and the mode of delivery, as when the number of deliveries increase, the rate of cesarean section decreases (P = 0.216).

Regarding the correlation between bishop score and mode of delivery, there was a negative correlation between bishop score and the mode of delivery, as when bishop score increases, the rate of cesarean section decreases (P = 0.241). Further, there was also negative correlation between fetal weight and the mode of delivery, exhibited as raises in fetal weight concomitant with increase in the rate of cesarean section (P = 0.151).

Table 3. Correlation between the mode of delivery with different variables

Variables	The sample	Mean	Std. deviation	Pearson Correlation	Sig. (2-tailed)
Correlation between the mode of delivery and Age					
Mode of delivery	100	.46883	1.3200	.056	.582
Age	100	32.17	.520		
Correlation between the mode of delivery and parity					
Para	100	2.05	.757	0.216-	**.031**
Mode of delivery	100	1.32	.468		
Correlation between bishop score and mode of delivery					
Bishop score	100	6.25	.202	-.241	**.016**
Mode of delivery	100	1.32	.520		
Correlation between fetal weight and mode of delivery					
Fetal weight	100	3.7880	3.475	-.151	**.0134**
Mode of delivery	100	1.32	.468		

DISCUSSION

The trial of labor after cesarean (TOLAC) is an attempt to reduce CS rates. Several national medical associations have provided practice guidelines for vaginal birth after cesarean section (VBAC) [9,10]. Cesarean delivery rates have increased dramatically worldwide. In the United States, cesarean section (CS) rates increased from 5% of all deliveries in 1970 to a high of 31.9% in 2016 [11]. Although efforts were made to reduce the number of CS, it failed to achieve the 15% rate recommended by the World Health Organization (WHO) [12].

In our study, higher bishop score, higher parity and gravidity were associated with a successful VBAC. While, advanced age and macrosomia were associated with an unsuccessful VBAC. We also report that the chance of normal vaginal delivery decreased with advanced maternal age p value 0.056. This was supported by Yanxin et al., who found that increased age was associated with decreases the likelihood of VBAC. Women with advanced age were more likely to fail to VBAC [13], which was also supported by Eden et al., [14].

Age ≥ 40 years-old was also a risk for uterine rupture when women undertook TOLAC. So, younger women, especially those < 35-years-old, were more likely to have a successful and safe VBAC [15].

In the current study, the chance of vaginal delivery was increased with presence of previous vaginal deliveries (p value 0.216). As agree with Kalok et al., women with prior vaginal birth were three times more likely to achieve success of TOLAC]. Similar findings regarding a history of vaginal births have been reported by numerous studies [16,17].

According to our study, the chance of normal vaginal delivery increasing with high bishop score p value 0.241, and this was agreed with Yun-Xiu et al., in the delivery process, women with a cervix Bishop score ≥5 had a higher probability of successful TOLAC [18]. In a study conducted by Haumonte et al, Bishop's score was an important predictor of successful VBAC [19,20]. On the other hand, Kalok et al demonstrated that a modified Bishop score ≥6 was independently associated with successful VBAC after adjusting for confounding variables [21].

The present findings reported that the chance of normal vaginal delivery was reduced with increasing fetal birth weight (p value 0.151). This was agreed with results reported by Thapsamuthdechakorn et al., aimed to evaluate the influence of neonatal birth weight on the success of TOLAC, and have found consistent results that lower estimated birth weight have a greater chance of having a successful VBAC than their counterparts [16]. Another study done by Kruit et al, showed that women with spontaneous onset of labour were more likely to have successful VBAC [21]. The rate of repeat CS was higher in women undergoing induction of labour (38% vs 20.2%; p<0.001) [22].

In our study, the chance of normal vaginal delivery increasing with presence previous vaginal deliveries (p=0.216). As agreed with Haumonte et al, who reported that women with prior vaginal birth were three times more likely to achieve success of TOLAC. Similar findings regarding a history of vaginal births have been reported by numerous studies [21]. Moreover, as revealed by Thapsamuthdechakorn et al., women with prior vaginal birth were three times more likely to achieve success of TOLAC. Similar findings regarding a history of vaginal births have been reported by numerous studies

[16]. Furthermore, various studies have been conducted to evaluate the influence of neonatal birth weight on the success of TOLAC, and have found consistent results that lower estimated birth weight have a greater chance of having a successful VBAC than their counterparts [16].

Limitations of this study

The retrospective nature of the study which made it difficult to reliably access several confounding factors. However, the retrospective nature could also be a strength of the study since it reflected a real-world practice of TOLAC, not just the ideal circumstance of TOLAC in research practice.

CONCLUSIONS

The current outcomes exhibited that age, bishop score, birth weight, previous vaginal birth, should be considered as the factors related to the success of VBAC. We believe that the results are important for women who are pregnant or are planning to become pregnant after a previous CS.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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