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Research Article

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Factors Associated with The Success of Trial of Labor after One Previous One Cesarean Delivery at Baniwalid Hospital, 2016

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ABSTRACT

As a result of improvements in obstetric care, it is now relatively safe for an attempt at vaginal birth after Cesarean section (VBAC) and recommended as a method to reduce the rate of Cesarean deliveries (CD) and subsequent maternal and neonatal morbidity.

The study was cross sectional type, conducted in Bani-Walid General Hospital, from 1st of January to 31st of December 2016; included 364 women who had one previous cesarean section and went for trial of vaginal delivery. A structured case sheet was designed to collect the following data: age, gravidity, parity, abortion, gestational age, mode of current delivery, indication of current CS and neonatal outcome. Data analyzed by SPSS program version 21.

Out of 364 women studied, 139 (38.2%) were attempted VBAC and 225 (61.8%) were underwent cesarean section. The most common indication for current cesarean section was dystocia (36%) followed by fetal distress (21.8%) then mal-presentation (8.9%). There was significant difference among the women who had VBAC and those women who underwent CS in their age, gravidity, parity, and cervical dilatation >4cm, P value were 0,047, 0.0001, 0.01, and 0.0001 respectively. The other characteristics (abortion, gestational age at delivery, and gender and birth weight of neonate) of the women did not show any significant difference.

Patients without any contraindication to vaginal delivery, trail of labor after cesarean is a safe option. In this study, successful VBAC was associated with the age of the patients, the past obstetric history, cervical dilatation, and history of previous vaginal delivery.

Keywords- *Cesareansection; Vaginal birth; Trial of labour; Baniwalid.*

INTRODUCTION

According to the World Health Organization (WHO) in 2015, the rate of caesarean section among women with previous CS ranged between 78.1 and 79.4% in high-income countries, 85.2 and 87.5% in middle-income countries and 63.2 and 72.1% in low-income countries.[1] 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.[2] Vaginal birth after Cesarean section (VBAC) is associated with decreased maternal morbidity and a decreased risk of complications in future pregnancies as well as a decrease in the overall cesarean delivery rate at the population level, it is more affordable, shorter maternal hospitalizations, and encourages earlier and better bonding between mother and infant.[3-6]

A 60 to 80% success rate of vaginal birth after previous caesarean section has been reported by many authors if the primary caesarean was done for nonrecurring indications.[5,6] However, trial of labour after cesarean (TOLAC) after Cesarean delivery is not without risk; including endometritis, blood transfusion and, uterine rupture.[7,8]

Uterine rupture is less common (0.2-0.8%), factors that potentially increase the risk of uterine rupture include short inter-delivery interval (less than 12 months since last delivery), post-date pregnancy, maternal age of 40 years or more, and obesity, 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.[2,9,10]

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.[2]

In an attempt to reduce the rising CS rate and its complications, this study was conducted to determine the factors associated with success of vaginal birth in women who had previous cesarean section at Bani-Walid General Hospital during the year 2016.

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MATERALS AND METHODS

A cross sectional study was conducted in Bani-walid general hospital, Bani-Walid, Libya, from 1st of January to 31st of December 2016. Three hundred and sixty four women who had previous one cesarean section and went for trial of vaginal delivery were randomly selected using simple random sample technique from the hospital files. A structured case sheet was designed and used to collect the data from the hospital files. The following data was obtained from the files and from the women: the age, gravidity, parity, abortion, gestational age, cervical dilatation, and mode of current delivery, indication of repeated C/S, and neonatal gender and birth weight. The data were analyzedusing the Statistical Program for Social Sciences (SPSS version 21). Descriptive statistics were used and all results are presented as frequencies, means standard ± deviation and percentages. Categorical data were compared using the Chi-square test and Fisher's exact test if appropriate. Quantitative data were compared using Student T test. A P-value of less than or equal to 0.05was considered statistically significant. Permission from the hospital was obtained and data was anonymous and data confidentiality was maintained throughout the study.

RESULTS

The total number of mothers with one previous caesarean section in the study was 364, out of 364 women studied, 139(38.2%) attempted VBAC and 225(61.8%) were underwent cesarean section. The most common indication for current cesarean section was dystocia (36%) followed by fetal distress (21.8%) then mal-presentation (8.9%), postdate (7.1%) and macrosomia (6.2%) (Table1).

Table 1: Indications of cesarean section in the current pregnancy (Bani-walid hospital, 2016)

Indications of C/S	Frequency %
Dystocia	81 (36%)
Fetal distress	49 (21.8%)
Malpresentation	20 (8.9%)
Post date	16 (7.1%)
Macrosomia	14 (6.2%)
Tender scar	10 (4.4%)
Multiple pregnancy	9 (4%)
Meconium	8 (3.6%)
Preeclampsia	5 (2.2%)
Chorioaminitis	4 (1.8%)
APH	2 (0.9%)
Others	7 (3.1%)
Total	225

The results showed that the mean age for patients who had successful vaginal delivery was 30.9 years while the mean age of patients who underwent cesarean delivery was 29.8 years. The highest percentage of the patients in the both groups was between 30 and 39 years (64.7% for patients who succeed and 48% for patients who failed). The result was statistically significant ($P = 0.047$) (Table 2).

Table 2: Distribution of the cases according to mode of delivery by age group.

Age by years	Vaginal delivery	C/S	Total
20 - 29	46 (33.1%)	104 (46.2%)	150 (41.2%)
30 - 39	90 (64.7%)	108 (48%)	198 (54.4%)
≥ 40	3 (2.2%)	13 (5.8%)	16 (4.4%)
Total	139 (100%)	225 (100%)	364 (100%)

In respect to gravidity and parity, there were significant differences between VBAC and CD groups (P= 0.0001, 0.01) respectively. No significant differences were determined between both groups regarding history of abortion and gestational age. The percentage of patients who had cervical dilatation more than 4cm was higher in the VBAC group (36.7%) than the CD group (12%) ($P = 0.0001$) (Table 3).

Table 3: Characteristics of women underwent a trial of labor or an elective cesarean section after a prior one cesarean delivery**.**

Characteristic	Vaginal delivery	Cesarean section	*P* value
Gravidity			
2 – 4	95 (68.8%)	189 (84.8%)	0.0001
5 – 7	40 (28.73%)	26 (11.7%)	
>7	4 (2.9%)	8 (3.6%)	
Parity			
1 – 3	106 (76.2%)	203 (90.1%)	0.01
4 – 6	30 (21.7%)	17 (7.6%)	
>6	3 (2.2%)	5 (2.2%)	
Abortion			
No	103 (74.1%)	159 (70.7%)	0.478
Yes	36 (25.9%)	66 (29.3%)	
Gestational age			
Preterm	4 (2.9%)	11 (4.9%)	0.635
Term	112 (80.6%)	176 (78.2%)	
Post date	23 (16.5%)	38 (16.9%)	
Cervical dilatation			
≤ 4 cm	88 (63.3%)	198 (88%)	0.0001
>4 cm	51 (36.7%)	27 (12%)	

The relation between previous vaginal delivery and the

current mode of delivery was statistically significant in this study. The result showed that 49.6% of the patients with successful vaginal delivery had previous vaginal delivery and about 24.4% of the patients who failed to have vaginal delivery had previous history (Figure 1).

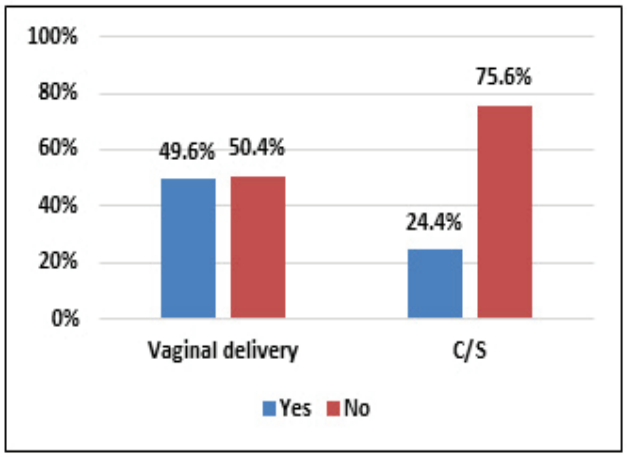

Figure 1: Distribution of cases according to previous vaginal delivery and current mode of delivery (Bani-Walid Hospital, 2016).

The relation between the last cesarean section and the current delivery was statistically insignificant ($P = 0.44$). About 43.2% of the successful group and 39.1% of the failed group had interval more than 2 years (Figure 2).

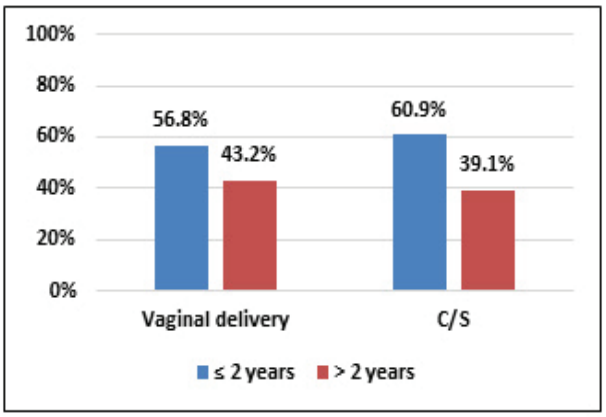

Figure 2: Inter delivery interval and current mode of delivery (Bani-Walid General Hospital, 2016).

Regarding the sex of the neonate, the percentage of males was higher in the CD group (54.6%) than in the VBAC group (46%) while the percentage of females was higher in the success group (54%) (Table 4).

With regard to the birth weight, most of the neonates in both groups had normal weight (80.6% of the VBAC group and 87.9% of the other group). The percentage of low birth weight was 9.3% of the success group and 2.3% of the CD group, on the other hand the percentage of macrosomia was 10.1% of the success group and 9.8% of the CD group (Table 4).

Table 4: Distribution of newborn by gender and birth weight according to type of delivery.

Characteristic	Vaginal delivery	C/S	*P* value
Gender			
Male	64 (46%)	123 (54.6%)	0.316
Female	75 (54%)	102 (45.4%)	
Birth weight			
Low birth weight	13 (9.3%)	5 (2.3%)	0.737
Normal weight	112 (80.6%)	197 (87.9%)	
Macrosomia	14 (10.1%)	22 (9.8%)	

DISCUSSION

The result of the current study showed that the success rate of vaginal delivery after cesarean section was 38.2%. A previous study in Libya reported that the success rate of vaginal delivery after cesarean section was 50.9% which is higher than the current study.[11] Similar result was reported by Rahman R study in which the rate of success of vaginal delivery after cesarean section was 32.1%.[12] Regarding the age the current study showed that patients who had successful vaginal delivery have mean age higher than those who have cesarean delivery and the result was statistically significant. Similar finding was reported by Devkare et al in India in which the age of the patients who had successful vaginal delivery is higher than those who failed to have vaginal delivery.[13] The present study showed no significant difference between both group regarding gestational age, while in a study conducted by Abdelazim et al, reported mean gestational age was significantly lower in the successful TOLAC group compared to the unsuccessful group (37.5±0.04 versus 38.5±0.03 weeks), and the number of women admitted in labor with gestation ≥40 weeks was significantly high in the unsuccessful group.[14]

With regards to the obstetric history in current study, the mean gravidity and the mean parity of the patients who had successful vaginal delivery were higher than patients who had cesarean delivery. A study conducted by Obiedat et al in Jordan, reported that the parity of ≥ 2 has a higher likelihood of successful VBAC.[15]

In this study, previous history of vaginal delivery was a significant factor associated with the increase rate of success of the trial, similar results were reported by other studies.[11] Women with a vaginal delivery after their prior cesarean were three to seven times more likely to have a VBAC for their current delivery, compared with women with no prior vaginal deliveries.[16]

The present study showed that the longer the inter delivery interval> 2 years, the higher the success rate of VBAC. This finding is supported by Zaitoun et al study which reported that, women in the VBAC group were more likely to have longer spacing period (≥ 18 months) between their previous CS and their present pregnancy compared to those in the in the CD group.[17] With regard to the fetal factors, the current study showed no significant factor that affect the success rate of the vaginal delivery after the cesarean

section. Most of the studies showed the same result in which there was no significant association between fetal factors and the success of VBAC.[11,13,18,19] While other study revealed that as infant weight increases the likelihood of VBAC decreases.[16]

CONCLUSION

In patients without any contraindication to vaginal delivery, TOLAC is a safe option. In this study, successful VBAC was associated with the age of the patients, the past obstetric history, cervical dilatation, and history of previous vaginal delivery.

RECOMMENDATIONS

It is essential to counsel patients with a history of prior CD, ideally during the antenatal period, regarding the benefits and the risks (both maternal and neonatal) of a VBAC, enabling them to make an informed choice early and to reduce caesarean section rate.

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