Success of vaginal deliveries among women in labor with previous cesarean section: Analysis of 50 cases

Eva Febia, Jimmy Toga Sitorus and Cut Meurah Yeni

Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Syiah Kuala Zainoel Abidin General Hospital-Ibu dan Anak Hospital, Banda Aceh. Indonesia.

Abstract. This study was purposed to evaluate the success of vaginal deliveries after cesarean (VBAC). This case-series-study was conducted in Zainoel Abidin and Ibu dan Anak Hospital, as referral and teaching Hospitals, Faculty of Medicine Universitas Syiah Kuala, Banda Aceh, from January until October 2011 with descriptive analytic method. The outcomes were the success of VBAC. There were 50 subjects attempted VBAC. From 50 subjects who attempted VBAC, 45 subjects (90%) were succeed in vaginal delivery, 5 subjects (10%) were unsuccessful and had to undergo emergency C-Section. The parameters which were likely to contribute to the success of vaginal delivery in subjects who attempted VBAC were gestational age less than 40 weeks, the progress of cervical dilatation of less than 1 cm in 60 minutes, more ripened cervix on the labor. Parameters such as lower baby's weight and history of vaginal delivery also result in the success of VBAC. Gestational age, Bishop score, and the progress of cervical dilatation contributed to higher success of VBAC.

Keywords: Vaginal Birth after Caesarean, Bishop pelvic score

Introduction

Increasing rate of cesarean section rate that exceeds 30% gives serious impact on the next pregnancy. Women who tried to attempt vaginal birth after cesarean (VBAC) were faced with the risk of uterine rupture. Many studies showed the maternal and perinatal complication for those who failed VBAC. The succees and failure of VBAC was related to the selection of candidates who would like to attempt VBAC. Some literatures showed prognostic parameters of the success of VBAC included previous vaginal delivery, younger age of the mother, gestational age less than 40 weeks, lower fetal birth weight, ripened cervix based on Pelvic Bishop Score, as well as goor progress of labor.

This study was preliminary study to know and analyse parameters which were related to the success of VBAC in our hospital

Materials and Methods

The method of this study was descriptive analysis of 50 patients who attempted VBAC in our referral and teaching hospital, Zainoel Abidin Hospital and Ibu Anak Hospital from January 2011 until October 2011. The outcome of this study was the success of VBAC, which was defined by vaginal birth with or without extraction as well as augmentation. Subjects who failed VBAC were those who underwent emergency C-section because of lack of progress in labor toward the risk of uterine rupture. This tudy was conducted in our hospital where fetal heart monitoring was available continuously and 24 hours operating room was available.

The criteria for subjects who tried VBAC were those with inter-delivery time more than 18 months ago, previous lower segment incision of the uterus, no cephalopelvic disproporsion, no history of uterine rupture, with adequate pelvic, without any contraindication of vaginal delivery such as lie abnormality, placenta previae, etc.

Parameters studied were maternal age, history of vaginal delivery, gestational age, birth weight on previous cesarean section, birth weight of the baby, inter-delivery time, pelvic assessment on admission such as cervical dilatation, cervical thickness, head descent, Pelvic Bishop Score on active phase of labor, duration of active phase of labor, and progress of labor. Statistical analysis used Chi-Square or Fisher for categorical data, Student T-Test for numeric parametric, as well as Mann-Whitney for non-parametric numeric. It was statistically significant if p value <0.05.

Results and Discussion

From the indication of previous cesarean section, failure of VBAC was higher in dystocia active phase of labor, macrosomia, or cephalopelvic disproportion. It was different from the group that succeeded VBAC, the indications were absolute indication such as abnormal lie, abnormal presentation, premature rupture of membrane, fetal distress, post-term with failure of induction, bleeding, placenta previae, and intra-uterine infection.

We compared data between group who failed VBAC and succeeded VBAC [Table 1]. All subjects who had delivered vaginally before cesarean section were succeeded in attempt VBAC with success rate of 100%. It was similar with the study by Cahill et al[8] that showed the VBAC success rate of 100% in those who had history of vaginal delivery. Gestational age ≤ 40 weeks was related with the higher success rate of VBAC (p=0,049). That finding was supported by Hashima et al which showed that gestational age longe than 40 weeks was associated by higher failure rate of VBAC. Progress of cervical dilatation was aso associated with increase success rate. Good progress of cervical dilatation was good predictor for VBAC success.

Table 1. Data between groups who succeeded VBAC and failed VBAC.

	Succeeded VBAC (n=45)	Failed VBAC (n=5)	p value
Previous vaginal Delivery			
Yes	9 (100%)	0 (0%)	0.068
No	36 (87.8%)	5 (12.2%)	
Gestational age			
≤ 40 weeks	32 (96.2%)	1 (3.8%)	0.049*
>40 weeks	13 (76.5%)	4 (23.5%)	
Progress of cervical dilatation			
More than 1 cm/120 minutes	40 (100%)	0 (0%)	0.038*
Less than 1 cm/120 minutes	5 (50%)	5 (50%)	

*Statistically significant if p value <0.05

Table 2.Numeric data between groups who succeeded VBAC and failed VBAC

	Succeed VBAC (n=45)	Failed VBAC (n=5)	p-value
Maternal age (years old)	30.7±3.8	30.8±3.1	0.942
Birthweight of the baby of previous Cesarean (gram)	3108.3±414.4	3280.0±455.0	0.491
Birthweight of baby on this pregnancy (gram)	2955.0±704.9	3420.0±327.1	0.084
Inter-delivery time (months)	39.5 (23-84)	48 (30-84)	0.425
Duration of active phase of labor (jam)	6.5 (1-14)	4.0 (3-24)	0.442
Cervical dilatation on admission (cm)	2.5 (1-10)	2.0 (2-9)	1.000
Cervical thickness (%)	48% (10%-80%)	30% (30%-66%)	0.328
Head descent (Hodge)	1.5 (1-3)	1 (1-2)	0.328
Bishop score on admission	5.9±4.0	5.0±3.4	0.669
Bishop Score on active phase of labor	10.2±1.6	7.3±2.2	0.039*

*Statistically significant if p < 0.05

From the table, it was shown that maternal age was not associated with success rate of VBAC. It was not similar by Bujold et al who mentioned that maternal age > 35 years old resulted in more failure of VBAC. Higher baby weight was also more likely to result in higher failure of VBAC even though statistically it was not significant. It was similar by Peaceman study.

Subjects with higher success rate of VBAC were more likely to have thinner cervix, more cervical dilatation, more decended head, eventhough not statistically significant. Higher Bishop pelvic score which indicated cervical ripening on the active phase of labor occurred in those who succeeded VBAC. It was similar with study by Bujold et al.

Conclusion

From this study subject who were more likely to succeeded in VBAC were those with gestational age less than 40 weeks, more ripened cervix, history of vaginal delivery, good progress in cervical dilatation of less than 1 cm/hour.

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