JKAU: Med. Sci., **Vol. 13** No. 2, pp: 33-40 (2006 A.D. / 1427 A.H.)

Vaginal Birth after Cesarean Section (VBAC) in Grand-Grand Multiparous Women: A Retrospective Case Control Study

Nabeel S. Bondagji*, MD, FRCS(C)

Department of Obstetrics & Gynecology,
Faculty of Medicine
King Abdulaziz University, Jeddah, Saudi Arabia
bondagji_nabeel@hotmail.com

Abstract. To determine the success rate, maternal complications and the neonatal outcome of attempting vaginal birth after cesarean section in grand-grand multiparous, Para 10 and more with one previous Cesarean section. The second objective is to determine the success rate of VBAC according to parity. A retrospective case controlled study conducted at the Maternity and Children Hospital in Makkah, Saudi Arabia during January 1, 2001 and December 31, 2004. Fifty women who had previous ten (10) deliveries or more of which the last was cesarean section were selected as the study group and compared with two control groups, of parity ranging from 6-9 and 2-5 subsequently. The success rate of vaginal birth after cesarean section was 34%, 54%, and 70% in the 3 groups subsequently. There was an increase in the intrapartum complications in the study Group, which was not statistically significant. There was an increase in the incidence of postpartum hemorrhage in the study group compared to other groups. The postpartum febrile illness, hospital length of stay and the neonatal outcome were comparable in the 3 groups. VBAC in grand grand multipara is an option; nevertheless, the success rate is lower than that reported in women with lower parity.

Keywords: Vaginal birth after cesarean section, Grand grand multipara, Surgical complications.

*Correspondence & reprint requests to: Dr. Nabeel S. Bondagji
P.O. Box 40047 J-52, Jeddah, 21499 Saudi Arabia
Accepted for publication: 15 March 2006. Received: 22 October 2005.

Introduction

Grand multiparity is associated with a higher complication rates in comparison to lower parity counterparts[1-5]. The principle of vaginal birth after cesarean section (VBAC) in women with a primary cesarean section has been investigated thoroughly and proven to be relatively safe thus reducing the rate of cesarean section in selected patients[6-8]. The success rate of VBAC was reported to be between 60-80%[9]. In modern obstetrics, various medical health organizations including the National Institute of Health Sciences (NIHS) and the American College of Obstetricians and Gynecologists (ACOG) advocated the practice of trial of VBAC in patients with one previous cesarean section with certain provisos[9,10]. One of the major risks in attempting vaginal birth after cesarean section is uterine rupture with all the maternal and fetal complications related to this unpleasant and serious complication. Gardeil *et al.*[11] in their large review on uterine rupture concluded that 80% of the uterine rupture in obstetric populations occurs in patients attempting vaginal birth after cesarean section. The combinations of grand multiparity and the trial of vaginal birth after cesarean section are a rare particularly in the developed countries. In developing countries, it is not uncommon for some women to have 10 pregnancies or more; however, the identification of the patient who delivered her last pregnancy by cesarean section and currently is pregnant in her 11th pregnancy and given a trial of VBAC is an extremely difficult task.

On reviewing the literature, we could identify two reports that have addressed the outcome in VBAC in multiparous women. These studies described VBAC in women with parity of 6 and more in general with no particular emphasis on those with parity of 10 and more[12,13]. The order of the cesarean section in relation to the VBAC was not reported in the two studies. The success rate of VBAC in the two reports was 60% and 80%, subsequently. This study stratified parity into 2-5, 6-9, 10 and more groups and looked at the success rate and the safety of VBAC in each of the three groups.

Materials and Methods

This retrospective case control study was conducted in the Maternity and Children Hospital in Makkah, Saudi Arabia, which is considered one of the major maternity institutions in the Western region of Saudi Arabia with an average number of deliveries of 12,000 per annum.

During the study period between the beginnings of January 2001 until the end of December 2004, there were a total of 47,254 deliveries. Fifty women fulfilled the criteria for inclusion in this study. The inclusion criteria stipulated that the last delivery before the trial of VBAC should have been a cesarean section for a non-

recurrent indication and the gestational age at the time of presentation for delivery should have been 26 weeks or more. All patients fulfilled the standard criteria for a trial of VBAC as recommended by the ACOG. Therefore, patients with unknown scar, classical cesarean section, large babies, and multiple pregnancies, more than one cesarean and abnormal placentation were excluded from this study. Patients with any medical conditions complicating their pregnancies such as severe preeclampsia or uncontrolled diabetes were also excluded.

Two control groups of fifty patients in each group were selected with parity 6-9 (Group 2) and parity 2-5 (Group 3) from the same population, at the same period of time. The hospital's Ethics Committee, which is the higher authority in the institution dealing with ethical issues including research, approved the study and the data collection.

The medical records for each patient in the three groups were extracted and reviewed by one attending staff member; the data were collected and analyzed. The three groups were comparable in age, booking status and their suitability for VBAC to eliminate the effect of these variables on the tested outcome. They were also comparable in the rate of induction and augmentation of labor.

In the study group, the rate of induction was 22% (11:50) compared to 26% (13:50) in-Group 2 and 24% (12:50) in-Group 3, with no statistically significant difference. Five patients were induced in the study group, six in-Group 2 and another five in-Group 3. Narcotic medications and the inhaled nitrous oxide were used in pain control during labor. The standard form of anesthesia with cesarean section in the institution is spinal anesthesia unless general anesthesia was decided by the anesthetist for medical or technical reasons.

Results

The mean maternal age was 35-, 34.5-, and 35-years-old in the three groups, subsequently. The success rate of VBAC was 34% (17 of 50) in study Group 1; 54% (27 of 50) in Group 2; and 70% (35 of 50) in Group 3 (Fig. 1). This difference was a statistically significant in terms of success between the other two groups and the study group with (P value 0.05). The perinatal mortality in the three groups revealed two intrauterine fetal deaths in-Group 1, one intrapartum death in-Group 2 and one early neonatal death in-Group 3 this was not a statistically significant difference.

The incidence of postpartum hemorrhage showed a significant difference among the 3 groups: being 22% in the study group (11 of 50); 14% in-Group 2, (7 of 50) and 8% in-Group 3 (4 of 50), P value 0.02, (Fig. 2.). Six patients in the study group, 12% received blood transfusion compared to three (6%) patients and two (4%) in Group 2 and 3, subsequently.

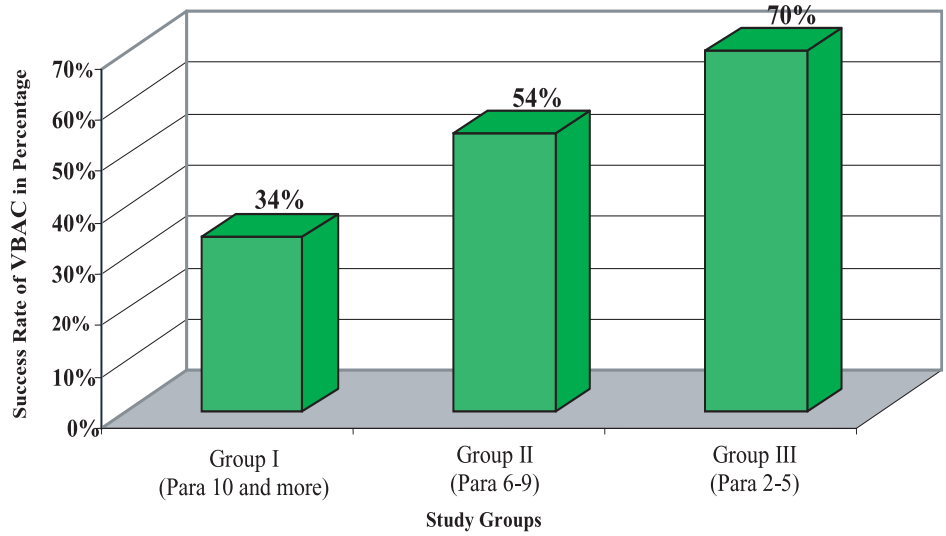

Fig. 1. The success rate in percentage of Vaginal Birth after Cesarean Section (VBAC) in the three study groups.

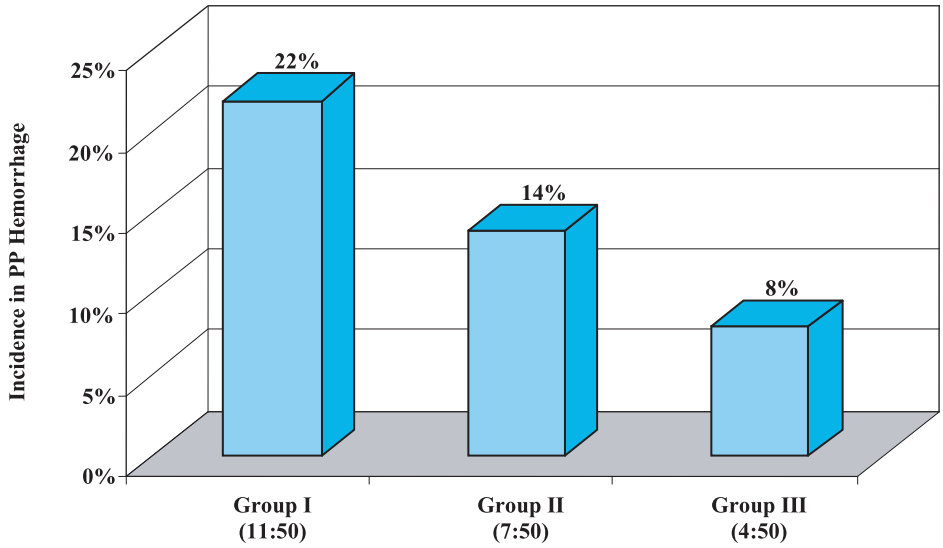

Fig. 2. Incidence of postpartum hemorrhage by percentage documented for the three groups.

The surgical complications showed two cases of scar dehiscence, two uterine rupture and two hysterectomies in the study group. In-Group 2 there was one case of scar dehiscence and no case of rupture uterus. In-Group 3 there was one case of uterine rupture with a favorable outcome there was no scar dehiscence in this group (Table 1). The two patients in the study group had hysterectomy for postpartum hemorrhage related to rupture scar in one and atonic uterus in the other after failure of the traditional methods to control the bleeding. The neonatal outcome in the three groups was comparable including the Apgar score in 1-, 5-, 10-min and Neonatal Intensive Care Unit (NICU) admission. There was no difference in the postpartum medical complications such as deep venous thrombosis, febrile illness, nor length of hospital stay. There was no maternal loss in the three groups.

Table 1. Surgical complications in the three groups.

Complications	Group I Para 10 and more	Group II Para 6-9	Group III Para 2-5
Rupture Uterus	2	0	1
Scar Dehiscence	2	1	0
Hysterectomy	2	0	0
Post Partum Hemorrhage	11	7	4
Blood Transfusion	6	3	2

Discussion

VBAC is becoming a standard of practice in all obstetrical institution around the globe, the success rate of trial of vaginal birth after one previous cesarean section have been reported to be 60-80%[6-8]; nevertheless, the safety and the success rate of such practice in grand multipara with a parity of 6 and more is under reported with paucity of the literature in the outcome of VBAC in women with parity of 10 and more. On reviewing the literature only two reports dealing with this issue in multiparous women, parity 6 and more were identified[12,13]. None of these studies addresses the outcome of VBAC in grand grand multiparous women, Para 10 and more. Dyack *et al.*[12] reported the outcome of 85 patients of Para 6 and more of which only 45 had a trial of VBAC with a success rate of 60% that was associated with a high incidence of serious complications and they recommend a closely supervised delivery with a high threshold for intervention. On the other hand, Yamani[13] reported a good outcome in multiparous women attempting VBAC with a success rate of 87.7% and without any major maternal nor fetal complications, in fact, the success rate in the study group was higher than the control group para 2-5 in that study, furthermore in the control group there was one uterine rupture, two scar dehiscence and one still birth compared to no major complications in the study group, the report

concluded in that attempting VBAC in grand multipara is safe and carries a good outcome. The current study stratifies the patients according to their parity; it demonstrates an inverse relationship between parity and the success rate (Fig. 1). This study revealed an increase in the incidence of postpartum hemorrhage (Fig. 2), the need for blood transfusion and the incidence of uterine scar accidents (dehiscence and rupture) as the parity increases in patients who are given a trial of vaginal birth after cesarean section.

The increasing need for blood transfusion secondary to increasing risk of uterine rupture and postpartum hemorrhage revealed by the present study indicates the need for an optimally equipped center before attempting such a trial in the group of grand-grand multiparous women. The center should have well trained obstetricians, anesthesiologist, a blood bank, adult and neonatal intensive care units. Appleton *et al.*[14] in the Australian VBAC multi-centre study group reported a risk of 25% for hysterectomy following ruptured uterus in VBAC. The current study reported three cases of ruptured uterus following VBAC of which one case ended by hysterectomy related to ruptured uterus. Despite the small number of patients this should alert clinicians about the possibility of hysterectomy following ruptured uterus after VBAC. A strict and careful monitoring of the maternal progress in labor should be practiced particularly in grand-grand multiparous women attempting VBAC.

Several investigators studied the antenatal predictor of the success of VBAC. Brill and Windrim[15] did an extensive review of these predictor factors by reviewing the published studies' literature in English. They concluded that maternal diabetes and obesity are the only two factors that affect the outcome of VBAC adversely. Gyamfi *et al.*[16] added another factor that may affect the success rate of VBAC in addition to maternal diabetes that is recurrent cause for cesarean section. Both studies did not take parity in consideration; the unique aspect of this study is that it showed increasing parity as a negative predictor for the success of VBAC by demonstrating an inverse relationship between the parity and the success rat of VBAC. Again further larger scale studies have to be done to confirm these findings.

Conclusion

Attempting VBAC is worthwhile in grand grand multipara. However the success rate is lower than that reported for lower parity. Attempting VBAC in such patients should follow strict criteria and close monitoring as patients are more likely to have postpartum hemorrhage, scar dehiscence, uterine rupture and even require hysterectomy. More studies with a larger number of patients, perhaps multicenters, are needed to confirm these findings.

References

[1] **Baskett TF.** Grand multiparity – a continuing threat: a 6-years review. *Can Med Assoc J* 1977; **116:** 1001-1004.

[2] **Fuchs K, Peretz BA, Marcovici R, Paldi E, Timor-Tritsh I.** The "grand multipara" – is it a problem? *J Gynecol Obstet* 1985; **23**(4): 321-326.

[3] **Bai J, Wong FW, Bauman A,** Mohsin M. Parity and pregnancy outcomes. *Am J Obstet Gynecol* 2002; **186**(2): 274-278.

[4] **Maia Filho NL, Mathias L, Barragan EG, Hiar J.** [Grand multiparity: Is it a high-risk pregnancy?] *Rev Paul Med* 1991; **109**(1): 14-18.

[5] **Aliyu MH, Jolly PE, Ehiri JE, Salihu HM.** High parity and adverse birth outcomes: exploring the maze. *Birth* 2005; **32**(1): 45-59.

[6] **Cowan RK, Kinch RA, Ellis B, Anderson R.** Trial of labor following cesarean delivery. *Obstet Gynecol* 1994; **83**(6): 933-936.

[7] **Flamm BL, Goings JR, Liu Y, Wolde-Tsadik G.** Elective repeated cesarean delivery versus trial of labor: a prospective multicenter study. *Obstet Gynecol* 1994; **83**(6): 927-932.

[8] **Miller DA, Diaz FG, Paul RH.** Vaginal birth after cesarean: a 10-year experience. *Obstet Gynecol* 1994; **84**(2): 255-258.

[9] **ACOG Committee on Practice Bulletins.** ACOG Practice Bulletin. Clinical management guidelines for obstetricians-gynecologists. Number 54, July 2004.

[10] **Norman P.** Vaginal birth after cesarean section. *Lancet* 1995; 345: 142.

[11] **Gardeil F, Daly S, Turner MJ.** Uterine rupture in pregnancy reviewed. *Eur J Obstet Gynecol Reprod Biol* 1994; **56**(2): 107-110.

[12] **Dyack C, Hughes PF, Simbakalia JB.** Vaginal delivery in grand multipara following previous lower segment cesarian section. *J Obstet Gynecol Res* 1997; **23**(2): 219-222.

[13] **Yamani TY.** Vaginal birth after cesarean section in grand multriparous women. *Arch Gynecol Obstet* 2004; **270**(1): 21-24.

[14] **Appleton B, Targett C, Rasmussen M, Readman E, Sale F, Permezel M.** Vaginal birth after cesarean section: an Australian multicentre study. VBAC Study Group. *Aust NJ Obstet Gynecol* 2000; **40**(1): 87-91.

[15] **Brill Y, Windrim R.** Vaginal birth after cesareans section review of antenatal predictors of success. *J Obstet Gynecol Can* 2003; **25**(4): 275-286.

[16] **Gyamfi C, Juhasz G, Gyamfi P, Stone JL.** Increasing success of trial of labor after previous vaginal birth after cesarean. *Obstet Gynecol* 2004; **104**(4): 715-719.

الولادة المهبلية بعد عملية قيصرية لدى النساء ذوات الولادات المتعددة (أكثر من عشر ولادات)

نبيل سالم بندقجي

قسم النساء والولادة ، كلية الطب ، جامعة الملك عبدالعزيز
جـــدة – المملكة العربية السعودية

المستخلص. أجريت هذه الدراسات للنظر في مدى نجاح محاولة الولادة الطبيعة بعد عملية قيصرية لدى النساء المتعددي الولادات، وذلك بمقارنتهم بعينة من النساء اللاتي ولدن بواسطة عملية قيصرية، ولكنهن أقل من حيث عدد الولادات السابقة، وقد تم تقسيم المرضى إلى ثلاث مجموعات على حسب عدد الولادات السابقة، المجموعة الأولى تشمل عشر ولادات فأكثر، والمجموعة الثانية تشمل من ٦-٩ ولادات سابقة، أما المجموعة الثالثة فتشمل عدد الولادات السابقة من ٢-٥ ، مع ملاحظة أن آخر ولادة لجميع المرضى كانت عن طريق ولادة قيصرية. وقد خلصت الدراسة إلى أن احتمال نجاح الولادة المهبلية بعد العملية القيصرية يقل كلما زاد عدد الولادات السابقة، بالإضافة إلى حصول عدد أكبر من المضاعفات بزيادة عدد الولادات السابقة. ونوصي بإجراء دراسات أكثر لإثبات الاستنتاج السابق، نظرًا لعدم وجود دراسات أخرى تشابه فكرة الدراسة الحالية.