International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 6 Issue 9, September -2019, Impact Factor: 3.015

Chance of Normal Vaginal Delivery after Cesarean Section

Dr. Manal Mahmood Ahmed[1], Dr. Yusra Mohammed Mahmood[2]

[1]M.B.Ch.B. D.G.O. Department of Obstetrics and Gynecology, AL-Khansaa Teaching Hospital, Mosul, Iraq
[2]M.B.Ch.B. D.F.M. AL-Aqsa Primary Health Care Center, Mosul, Iraq

ABSTRACT

In all the world, the cesarean section rate increase in the twentieth century and the most common indication of it is the history of previous cesarean section which represent 40% of all cesarean. As a result, we must stimulate the interest of vaginal delivery after cesarean section to solute this increasing rate by giving trial of labor. This trial must be done in well equipped hospital and under observation of senior obstetric to decrease the complication which may occur with this trail .The most scary complication is uterine rupture ,so in this retrospective study which have been done in AL-Khansaa teaching hospital from 1st Jan. 2018 to 1stFeb. 2019, there are 1080 patients admitted to labor ward with history of one cesarean section and in labor state, cephalic, single fetus with natural uterine contraction. The aim of the study is to know the rate of cesarean section, normal vaginal delivery and the criteria that influence on the mode of delivery. The study shows that there is 66.66% of them delivered normally and 33.33% delivered by cesarean section. The most common indication of 1st cesarean section is breech presentation 46.6%, no progress of labor and cephalopelvic disproportion 16.6% for everyone and 20% fetal distress indication. The indication of cesarean section and failure of trial of labor in this pregnancy divided to 43.8% because of no progress of labor and 35% because of fetal distress, 20% because of pre_ eclampsia and 1.1% dehiscent scar. The criteria which affect on mode of delivery are the age, history of normal vaginal delivery before, interval between this pregnancy and cesarean section bishop score at admission weight of neonate and gestational age.

Key words: cesarean section, normal vaginal delivery, rate, trial of labor.

INTRODUCTION

In all the world, there is increase in rate of cesarean section in the twentieth century and it varies internationally (10 _ 25%)(1,2).In 1970, the rate had been raised in North America from 5.5 % to 24.7 % in 1988(3) the rate of cesarean section because of history of previous scar is the highest (40%)(3) and the stimulus of interest in vaginal delivery after cesarean section is probably the solution for this increase in rate of cesarean section (1,2). So many studies have been done to know the chance of normal vaginal delivery after cesarean section. The trial of labor after cesarean section is trial of labor in well equppied hospital for selected cases which recorded in the hospital in labor pain with history of previous cesarean section (4). The risk in cesarean section comes from the complication which may occur with subsequent pregnancy like abnormal placental attachment maternal and neonatal complications, uterine rupture (5). Also the normal vaginal delivery is cost effective more than repeated cesarean section (6). But in many studies from Canada (MC Mahon et al 1996) (7), Europe (Ragethet al 1999)(8), USA(Lydon_Rochelleet al 2001)(9) demonstrated that there is increase in morbidity associated with trial of labor compared with elective repeated cesarean section (7_9).

The rate of normal vaginal delivery after cesarean section in 1985 is 3.4% but this rate increased to 27.5%in 1995(10).In the last two decades, normal vaginal delivery after cesarean section studies have demonstrated successful vaginal delivery rate(55_85%)(11,12,13,14). The capacity of scar to stand with the stress of uterine contraction in subsequent pregnancy and labor cannot be assessed completely. These cases require the assessment and supervision of obstetricains during labor (15).Also, it is important to know the indications of previous scar because they influence on the rate of normal vaginal delivery after cesarean section. The studies show that women with previous cesarean section due to no progress of labor have lower success rate of normal vaginal delivery while women with history of breech presentation or fetal distress have higher success rate (16,17). The success rate of normal vaginal delivery after cesarean section because of cephalopelvic disproportion is(25 -77%)(18,19,20).Also previous studies show that the risk of dehiscent scar in trial of normal vaginal

delivery after cesarean section is accepted if less than (1%) in spontaneous labor with lower segment transvers incision (11,12,13,14). By Shipp et al study, the risk of dehiscent is (2.3%) if interval between scar and trial of labor is less than 18 months and (1%) if interval is more than 18 months (21).

The aim of study is to see the chance of normal vaginal delivery after cesarean section and the criteria that influence on the mode of delivery.

METHODS

In this study, the data collected retrospectively from case sheets of 1080 patients who admitted to delivery room in AL-Khansaa teaching hospital from Jan-2018 to Feb-2019 in labor pain. All cases taken, in this study, had history of previous one cesarean section and they come in spontaneous labor pain with single and cephalic fetus. The cases which had breech presentation, transverse lie, bloody liquor, twins and preterm delivery all excluded from the study. This hospital admits about (19008) labor sat the time of study. (15696) of them delivered vaginally whereas (3312) delivered by cesarean section, (1080) of them are the target of study. The collected information about the patients are age, weight, parity ,interval between scar and this pregnancy, history of normal vaginal delivery before, indication of previous scar, gestational age, details of pelvic examination and membrane condition at admission. Then mode of delivery after trial of labor and weight of neonates after delivery. All these data base analyzed by SPSS program version (22) and all the values expressed in percentage and proportion.

RESULTS

The patients admitted to AL-Khansaa teaching hospital for labor from Jan-2018 to Feb-2019 are (19008) pregnant ladies. From this number, there are 15696 (82.5%) delivered normal vaginal delivery and 3312(17.4%) delivered by cesarean section. The most common indication for cesarean section is previous scar which represents (42%) of all scar. The cases of the study are (1080) cases, 720 (66.66%) delivered vaginally and 360 cases (33.33%) delivered by cesarean section after failure of trial of labor as in (Figure 1).

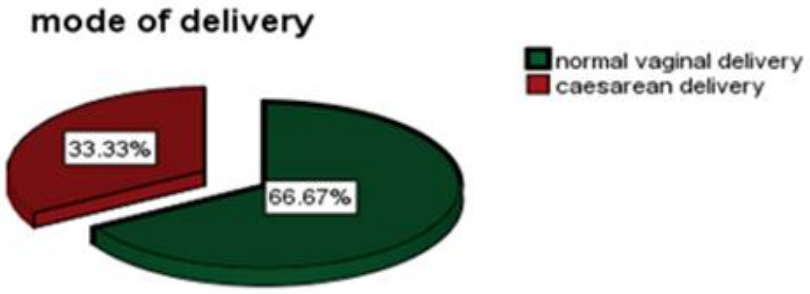

Figure 1: Mode of delivery

The indication of first cesarean section is breech presentation in 504 cases (46.6%), 324 of them (64.2%) delivered vaginally while 180 cases (35.7%) delivered by cesarean section . The cephalo –pelvic disproportion indication in the first scar are 180 cases (16.6%), all of them delivered vaginally (100%). No progress of labor indication are 180 cases (16.6%), 72 cases (40%) delivered vaginally and 108 cases (60%) delivered by cesarean section. Fetal distress indication cases are 216 (20%), 144 cases (66.6%) delivered vaginally while 72 cases (33.3%) delivered by cesarean section as seen in (Figure 2 Table1).

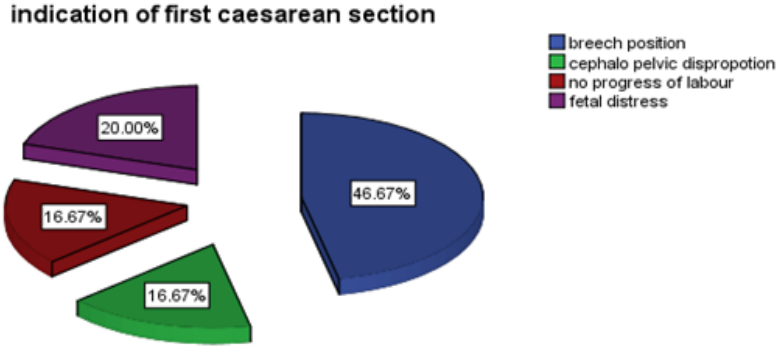

Figure 2: Indication of first cesarean section

Table 1: Indication of first cesarean section and mode of delivery

Indication of first cesarean section	Successful trial of labor		Unsuccessful trial of labor		Total	%
	%	N	N	%		
Breech presentation	64.2%	324	180	35.7%	504	46.6%
Cephalo pelvic disproportion	180	100%	Zero	o%	180	16.6%
No progress of labor	72	40%	108	60%	180	16.6%
Fetal distress	144	66.6%	72	33.33%	216	20%
Total		720		360		1080

The 360 cases which delivered by cesarean section. The indication of scar for 158 cases (43.8%) was no progress of labor, 126 cases (35%) the indication of cesarean section was fetal distress, 72 cases (20%) have been done cesarean because of pre-eclampsia and only 4 cases (1.1%) because of dehiscent scar (Table 2)

Table 2: indication of second cesarean section (unsuccessful trial)

Indication of cesarean section	N=360	%
No progress of labor	**158**	**43.8%**
Fetal distress	**126**	**35%**
Pre eclampsia	**72**	**20%**
Dehiscent scar	**4**	**1.1%**

The criteria which taken in the study that influence on labor mode are the age of patients, weight, history of normal vaginal delivery before ,interval between previous scar and trial of labor, bishop score of cervix at admission, membrane condition, gestational age and weight of neonates after labor. Concerning the age of patients, the study shows that there are 168 cases above 37 years old, 72 of them (42.8%) are delivered vaginally and 96 cases (57%) are delivered by cesarean section, while the patients less than 37 years old are 912 cases 648 (71%) are delivered vaginally and 264 (28.9%) delivered by cesarean section (table 3). The patients who had history of normal vaginal delivery are 612 cases, 504 cases (82%) of them delivered vaginally while 108 (17.6%) are delivered by cesarean section. The patients who not had history of normal vaginal delivery are 468 cases, 216 (46%) delivered by normal vaginal delivery and 252 cases (53.8%) delivered by cesarean section (table 3).

The patients who had interval between cesarean section and trial of labor more than 2 years are 576 cases, 504 (87.5%)delivered normally while 72 cases (12.5%)delivered by cesarean section. The patients who had interval less than 2 years are 504 cases, 216 (42.8%) delivered vaginally and 288 (57%) delivered by cesarean section (table 3). The patients weight if increase does not affect much on mode of delivery 588 cases body mass index > than 35, 444 cases (75.5%) delivered vaginally and 144 cases (24.4%) delivered by cesarean section, the patients who had body mass index <35 are 492 cases, 276 (56%) delivered vaginally and 216 cases (43.9%) delivered by cesarean section(table 3). The patients who had bishop score more than 6 are 636 cases, 463 of them (73.5%) delivered vaginally while 168 (26.4%) delivered by cesarean section. The patients who had bishop score less than 6 are 444 cases, 252 of them (56.7%)delivered normal vaginal delivery, and 192 (43%) delivered by cesarean section. (table 3). The condition of amniotic membrane at admission, the membrane are rupture for 276 cases, 132 of them (47.8%) delivered normally while 144 cases (52%) delivered by cesarean section. The patients with intact membrane are 804 cases, 588 of them (73%) delivered vaginally while 216 cases (26.8%) delivered by cesarean section (Table 3).

Table 3: criteria that influence on mode of delivery

Criteria	Successful trial of labor N	%	Unsuccessful trial of labor N	%	Total N	P-value
Age of pt.> 37y.	**72**	**42.8%**	**96**	**57%**	**168**	
<37y.	**648**	**71%**	**264**	**28.9%**	**912**	0.04
History of NVD +ve	**504**	**82%**	**108**	**17.6%**	**612**	
History of NVD -ve	**216**	**46%**	**252**	**53.8%**	**468**	0.001
Interval between CS. and trial >2y.	**504**	**87.5%**	**72**	**12.5%**	**576**	
Interval <2y.	**216**	**42.8%**	**288**	**57%**	**504**	0.001
BMI >35	**444**	**75.5%**	**144**	**24.4%**	**588**	
BMI <35	**276**	**56%**	**216**	**43.9%**	**492**	0.05
Bishop score >6	**468**	**73.5%**	**168**	**26.4%**	**636**	
<6	**252**	**56.7%**	**192**	**43%**	**444**	0.05
Membrane rupture	**132**	**47.8%**	**144**	**52%**	**276**	
Membrane intact	**588**	**73%**	**216**	**26.8%**	**804**	0.025
Gestational age <40 week	**684**	**82.6%**	**144**	**17.3%**	**828**	
>40 week	**36**	**14.2%**	**216**	**85.7%**	**252**	0.001
Weight of neonates >4 kg.	**36**	**14.2%**	**216**	**85.7%**	**252**	
Weight of neonates <4 kg.	**684**	**82.6%**	**144**	**17.3%**	**828**	0.001

The gestational age of 828 cases are less than 40 weeks, 684 of them (82.6%) delivered vaginally while 144 (17.3%) delivered by cesarean section. The patients more than 40 weeks gestational age are 252 cases, 36 of them (14.2%) delivered vaginally while 216 (85.7%) delivered by cesarean section (table 3). The neonates after delivery weighted more than 4 K.g. are 252 cases, 36 of them (14.2%) delivered normally and 216 cases (85.7%) delivered by cesarean section. The neonates weighted less than 4 K. g. are 828 cases, 684 of them (82.6%) delivered vaginally and 144 cases (17.3%) delivered by cesarean section (table 3).

DISSCUSSION

In all the world, the rate of cesarean section increase in the twentieth century and the most common indications of cesarean section is the history of previous scar. In order to decrease this rate of second cesarean section, we must stimulate the interest to vaginal delivery after cesarean section (1,2,3). So, this study shows the rate of cesarean section for all women admitted to AL-Khansaa teaching hospital from Jan- 2018 to Feb -2019, the most common indication of cesarean section, the criteria that influence on mode of delivery in atrial of labor for patients had history of one cesarean section ,singleton cephalic fetus coming with spontaneous labor. The study shows that the success rate of trial of labor (normal vaginal delivery) is 66.66% this is similar to a study done before (22,23), which showed success rate (50_85) and it is higher than other study which showed lower rate (27.4_53.6) (38,39). The previous cesarean section indication effects on the mode of delivery in subsequent labor. The breech indication in previous cesarean section, 64.2% of them end with successful trial of labor and deliver vaginally and this agrees with other study done (18,19). But the rate in these studies are much higher

(80%) the lower rate in this study because of there are many women afraid of rupture of uterus and change their mind about the labor and end with cesarean section.

The cephalo-pelvic disproportion indication in previous scar has success rate of trial of labor 100%, un like other study (18,19,20) which are less than this study (25-77%). This may be because of overestimated of cephalo-pelvic disproportion in previous pregnancy. No progress of labor indication in previous scar has success rate of trial of labor about 40% and it goes with other study (17,24,25). The success rate of normal vaginal delivery with fetal distress indication in previous scar is 66.6% and it agrees with other study (18,26). The cesarean section rate in this study after failure of trial of labor is 33.33% and the most indication of cesarean section is no progress of labor which is (43.8%) and second indication of cesarean section is fetal distress (35%) and this rate is higher than other study which shows (15%) of cases (18,27). This is due to poor facility in our hospital and the fetal distress only measured by fetal brady cardia and no other measurement of fetal distress like fetal PH or other facility because of the war which occurred in the city .

The risk of uterine rupture which is the most scary complication in trial of labor in this study is 1%and it is lower than other study which is (1.9%)(18), (4.2%)(27), but agrees with (AGOG) in which the rate is (0.2-1.5%)(28).About the criteria that effect on the mode of delivery, the age of patients if more than 37 years (57%) delivered by cesarean section and those with age less than 37 years (71%) delivered vaginally, so this agrees with other study which shows that increasing the age increases the risk of cesarean section (29,30,31). The patients who had history of normal vaginal delivery (82%) delivered vaginally while patients without history of normal vaginal delivery (53.8%) delivered by cesarean section and it agrees with other study which shows the greatest predictor for increase rate of normal vaginal delivery after cesarean section is prior vaginal delivery (29,32,33,34).

The study shows that the body mass index more than 35does not affect strongly on the trial of labor un like other study which showed increase body mass index may propose greater risk for cesarean section (29,30,31). The bishop score of patients at admission effects on trial of labor, bishop more than 6 (73.5%) delivered vaginally while the patients with bishop less than 6 the rate of vaginal delivery is (56.7%) and this agrees with other study (32,35).Also the gestational age at labor effects on success of trial of labor after cesarean section (82.6%)of patients who were less than 40 weeks delivered vaginally while patients more than 40 weeks (85.7%) delivered by cesarean section and this agrees with other studies which found that increase gestational age increases failure rate of trial of labor after cesarean section(40,41). The weight of neonates also effects on success of trial of labor if the weight was more than 4 K.g. (14.2%) only delivered vaginally and (85.7%) delivered by cesarean section and this agrees with other study which shows increase neonatal birth weight increases risk of recurrent cesarean section (36,37).

CONCLUSION

The study shows that women with history of cesarean section aged less than 37 years, have history of normal vaginal delivery, bishop score at admission more than 6, the interval between cesarean section and trial of labor more than 2 years, gestational age less than 40 years, weight of delivered neonate less than 4 K.g. are good criteria for normal vaginal delivery.

ACKNOWLEDGMENT

The authors are highly thankful to all workers in the archive department of AL-Khansaa teaching hospital for their help in completing this research and giving the data base of all cases.

REFERENCES

[1] TaJ G, Sohail N, cheema SZ , Zahid N, Rizwan S .Review of study of Vaginal Birth After Cesarean Section (VBAC). 2008 Ann Fam Med:14:13 -16.
[2] Curtin SC, Kozak L J, Gregory KD.U.S. cesarean and VBAC rates stalled in the mid 1990 s. Birth 2000:27(1):54-57.
[3] Porreco RR, thorp J A. the cesarean birth epidemic: trends causes and solution Am J obstet. Gynecol.1996:175:369-74.
[4] Pick rell K. An inquiry into the history of cesarean section .Bull soc Med Hist (Chicago) 1935:4:414.
[5] silver RM .implication of the 1st cesarean. perinatal and future reproductive health and subsequent cesareans, placentation issues ,rupture risk, Morbidity, and Mortality semin perinatal 2012:36(5) :315-23.
[6] Rogers A J, Rogers NG, Kilgore M L, Subramaniam A, Harper LM. Economic evaluations comparing atrial of labor with an elective repeat cesarean delivery: A systemic review . value health .2017:20 (1):163 - 73
[7] MC Mahon MJ .Luther ER, Bowes WA, Jr, oishan AF. Comparison of trial of labor with an elective second cesarean section. N Engl J Med 1996:335(10):689-95.
[8] Rageth JC, Juzic, Grossenbacher H .Delivery after previous cesarean a risk evaluation. swiss working Group of obstetric and Gynecologic institutions .obstet. Gynecol. 1999:93 (3):332-7.

[9] Lydon –Richelle M, Holt VL, Easter ling TR ,Martin DP, Risk of uterine rupture during labor among women with a prior cesarean delivery .N Engl JMed 2001 :345(1):3 -8 .
[10] Zinberg S. vaginal delivery after previous cesarean delivery acontinuing controversy. clin obstet. Gynecol. 2001 :44(3):561 -70.
[11] Flamm BL, Newman LA, Thomas S J, Fallon D, Yoshida MM. vaginal birth after cesarean delivery results of a 5 –year Multicenter Collaborative study .obstet. Gynecol. 1990:76(5 pt1):750 -4 .
[12] Flamm BL, Goings JR, LiuY, Wolde –T sadik G. elective repeat cesarean delivery versus trial of labor: a prospective multicenter study. obstet. Gynecol. 1994:83(6): 927 -32.
[13] Rosen MG, Dickinson JC. Vaginal birth after cesarean: a meta –analysis of indicators for success. Obstet. Gynecol. 1990: 76 (5 pt 1):865 -9.
[14] Phelan JP, Clark SL, Diaz F, Paul RH. Vaginal birth after cesarean. Am J Obstet. Gynecol. 1987: 157 (6):1510 -5 .
[15] S Cwarz O, Paddock R, Bortnick AR .The cesarean scar: An experimental study. Am J obstet. Gynecol. 1938:36:962 -5.
[16] Shipp TD, Zelop CM ,Repke JT .cohen A, Canghey AB , Lieberman E. labor after previous cesarean :influence of prior indication and parity .obstet. Gynecol. 2000:95 (6 pt):913 -6.
[17] Landon MB, Leindecker S, Spong CY, hauth JC , Bloom S ,Varner MW, Moawad AH, Caritis SN, Harper M, Wapner RJ, Sorokin Y, Miodovnik M, Carpenter M, Peaceman AM, Osullivan MJ, sibai BM, langer O, thorp JM, Ramin SM, Mercer BM, Gabbe SG, National institute of child health and human development maternal –fetal Medicine units net work: the MFMU cesarean Registry: Factors affecting the success of trial of labor after previous cesarean delivery. AM J obstet. Gynecol. 2005:193(3 pt 2):1016 -23.
[18] Phelan JP, Clark SL, Diaz F, Paul RH, Vaginal birth after cesarean. AMJ obstet. Gynecol. 1987:157:1510 -5.
[19] Jansen FW, Van Roosmalen J, Keirse MJ. Bennebroek Gravenhorst J. Vaginal delivery following cesarean section. Ned Tijdschr Geneeskd.1989:133:666 -9.
[20] Cosgrave R. Management of pregnancy and delivery after cesarean section J AM Med Assoc. 1951:145:884 -8 .
[21] Shipp TD, Zelop CM, Repke JT, Cohen A , Lieber man E. inter delivery interval and risk of symptomatic uterine rupture. obstet. Gynecol. 2001;97:175 -80 .
[22] Quilligan EJ .vaginal birth after cesarean section; 270 degree. J . obstet. Gynecol. Res 2001: 27 (4):169 -173.
[23] Biswass A .Managementof previous cesarean section. Curropin obstet. Gynecol. 2003:15 :123 -\ 129.
[24] Abildgarrd H, ingerslev MD, Nickelson C, secher NJ . Cervical dilatation at the time of cesarean section for dystocia –effect on subsequent trial of labor. Acta obstet. Gynecol. Scand .2013:92 (2):193 -7.
[25] Mizrachi Y, Barber E Kovo M, Bar J, Luries. prediction of vaginal birth after one cesarean delivery for non –progressive labor. Arch Gynecol. Obstet, 2017.
[26] Hoskins IA, Gomez JL. correlation between Maximum cervical dilatation at cesarean delivery and subsequent vaginal birth after cesarean delivery obstet. Gynecol. 1997 :89:591 -3.
[27] Dayal V. Trial of vaginal delivery in cases of single previous cesarean section. J obstet. Gynecol. 1985 :35:445 -50.
[28] ACOG Practice bulletin. vaginal birth after previous cesarean delivery. No.2, October 1998. clinical management guide for obstetrician – gynecologists .American College of obstetricians and Gynecologists.int J Gynecol. Obstet. 1999:64:201 – 8.
[29] Landon. MB Grobman WA, Kennedy E .shriver National institute of child health and human Development maternal –fetal Medicine unit network: what we have learned about trial of labor after cesarean delivery from the maternal fetal Medicine unit cesarean registry. Seminperinatal 2016:40 (5);281 -6 .
[30] Srinivas SK, Stamilio MD, Stevens EJ ,Peipert JF, Odibo AO, Macones G A . Vaginal birth after cesarean delivery: does Maternal age affect safety and success paediatr. Perinat Epidemiol.2007:21 (2):114 -20 .
[31] Hibbard JU ,Gilbert S , Landon MB ,hauth JT , leveno KJ, spong CY, V arner MW, caritis SN, Harper M, Wapner RJ ,Sorokin Y , Miodovnik M ,Carpenter M, peaceman AM, Osullivan MJ, sibai BM, langer O, Thorp JM, Ramin SM, Mercer BM, Gabbe SG .National institute of child health and human Development maternal –fetal Medicine unit network ;trial of labor or repeat cesarean delivery in women with Morbid obesity and previous cesarean delivery . obstet. Gynecol. 2006:108 (1):125 -33.
[32] Landon MB, Leindecker S, Spong CY, Hauth JC ,Bloom S varner MW, et al, The MFMU cesarean registry :Factors affecting the success of trial of labor after previous cesarean delivery. AMJ obstet. Gynecol. 2005:193 :1016 -23.
[33] Kraiem J, Ben Brahim Y, Chaabane K, Sarraj N, Chiha N, Fal foul A .indicators for successful vaginal delivery after cesarean section :A Proposal of apredictive score . Tunis Med. 2006:84:16 -20.
[34] White side DC, Mahan CS, Cook JC. Factors associated with successful vaginal delivery after cesarean section .J Reprod Med. 1983:28:785 -8.
[35] Demianczuk NN, Hunter DJ, Taylor DW. trial of labor after previous cesarean section. Prognostic indicators of out come. AMJ obstet. Gynecol.1982:142:640 -2.
[36] Zelop CM ,Shipp TD , Repke JT ,Cohen A ,Lieberman E .out come of trial of labor following previous cesarean delivery among women with fetuses weighing >4000 g. AMJ obstet. Gynecol.2001:185 (4):903 -5 .
[37] Kalok A ,Zabil SA ,Jamil MA ,Lim PS, shafiee MN ,Kampan N ,shah SA .Mohamedismail NA: antenatal scoring system in predicting the success of planned vaginal birth following one previous cesarean section . J obstet. Gynecol. 2017:1 -5.
[38] M. Madaan, S. Agrawal ,A. Nigam ,R. Aggarwal ,and S.S.trivedi ," trial of labor after previous cesarean section :The predictive factors affecting out come "Journal of obstetrics & gynecology , 2011:31(3):224 -8.
[39] A Agarwal P. Chowdhary V. Das, A. Srivastava, A. Pandey, and M.T. Sahu, "evaluation of pregnant women with scarred uterus in alow resource setting "Journal of obstetrics and Gynecology research ,2007:33(5):651 -4.
[40] Lundgren I, Begley C , Gross MM , Bondas T. "Groping Through The Fog" : Ametasyn thesis of women experience on VBAC (vaginal birth after cesarean section) BMC Pregnancy child birth. 2012:12:85.
[41] Peaceman AM, Gerosnoviez R, Landon BM, Spong CY, Leveno KJ, Varner MW, et al. The MFMU cesarean for dystocia AMJ obstet.Gynecol.2006 :195 :1127 -31.