OUTCOME OF MEMBRANE SWEEPING IN REDUCING INDUCTION RATES IN POST-DATE PREGNANCIES

Uzma Saleem, *Nilofar Mustafa, *Shamim Akhtar

Military Hospital Rawalpindi, *Combined Military Hospital Lahore

ABSTRACT

Objective: To determine the effectiveness of membrane sweeping in reducing need for induction of labour in post-date pregnancies and to enlist types and frequencies of complications experienced with membrane sweeping.

Study Design: Randomized Control trial.

Setting and Duration of Study: The study was carried out at Department of Obstetrics and Gynaecology, Combined Military Hospital, Lahore from February 2007 to April 2008.

Patients and Methods: One hundred primi or second gravidas with uncomplicated singleton pregnancies having cephalic presentation at 40+1-5 weeks of gestation were enrolled after informed consent, and divided randomly into two groups of fifty each. Biophysical profile of 8/8 for each case was ensured. Group A underwent membrane sweeping while group B did not. All patients not having spontaneous labour were induced at 40+5 weeks. Data regarding number of patients having spontaneous labour or induction of labour was recorded. Mode of delivery either vaginal or cesarean birth was also recorded. In group A occurrence of complications i.e vaginal bleeding or leaking, discomfort, irregular pains, fever and neonatal sepsis was recorded.

Results: The difference in rate of spontaneous labour, induction rate and mode of delivery was insignificant between both the groups (p>0.05). In group A, 44% felt discomfort, 4% had bleeding per vaginum, 2% had leaking per vaginum and 28% had more than one complication. There were no cases of maternal or neonatal sepsis. Twenty percent did not have any side effects.

Conclusion: Sweeping of membranes is not effective in reducing induction rates in post dates pregnancies. It does not improve the spontaneous labour rate and there is no effect on the mode of delivery. Therefore, any potential benefits of this intervention must be balanced against risk of maternal discomfort and other adverse effects.

INTRODUCTION

Induction of labour is an intervention designed to artificially initiate uterine contractions leading to progressive dilatation and effacement of the cervix and birth of the baby[1]. It is one of the most common interventions practiced in modern obstetrics with rates as high as 44% in some western countries[2]. In UK, it is currently employed in 15-20% of all term pregnancies. This represents a fall from peak incidence of 40% in 1970s[3]. Prolonged pregnancy accounts for 70% of all inductions[3,4]. As one of the potential complications of induction of labour is a failure to initiate labour, a decision to induce should equate with a decision to perform delivery by cesarean section if the intervention fails[5].

Evidence-based clinical guideline for induction of labour by College of Obstetricians and Gynaecologists recommends offering 'membrane sweeping before formal induction of labour[1]. During vaginal examination the clinician's finger is introduced into the cervical os and inferior pole of the membranes is detached from the lower uterine segment by a circular movement of the examining finger[6]. This intervention has the potential to initiate labour by increasing production of local prostaglandins, and thus reduce pregnancy duration or preempt formal induction of labour[6].

The purpose of this study was to determine the effectiveness of membrane sweeping in initiating spontaneous labour and avoiding

Correspondence: Lt Col Nilofar Mustafa, Dept. of Gynaecology, CMH, Lahore.
Email:colnilofarmustafa@hotmail.com
Received: 27 Jul 2011; Accepted: 20 Dec 2012

formal induction of labour, this could help in making our obstetric units more cost effective.

METHODOLOGY

Thsese randomized controlled trials were conducted at the Department of Obstetrics and Gynaecology, Combined Military Hospital, Lahore from February 2007 to April 2008. Hundred primi or second gravidas with uncomplicated singleton pregnancies having cephalic presentation at 40 weeks plus 1-5 days of gestation were divided randomly into two groups using random numbers table. Biophysical scores of 8/8 were ensured for each case before recruiting for the study. Informed consent was obtained after explaining the procedure and possible side-effects. Group A underwent membrane sweeping by a doctor, while group B didn't undergo this intervention. Patients not having spontaneous labour were induced at 40 weeks 5 days, in both groups. Data regarding age, parity, gestational age, occurrence of spontaneous labour or formal induction of labour and mode of delivery (vaginal / cesarean) was recorded on a specially designed proforma. In group A complications i.e. vaginal bleeding (any amount), vaginal leaking (demonstrable by speculum examination), discomfort (refusal to undergo this intervention in future), irregular labour pains (uterine contractions lasting less than 15 seconds with a frequency of 1-2 times per hour), maternal fever (temperature > 98.6^0 F) and neonatal sepsis (presence of serious bacterial infection in the setting of fever).

The data was analyzed by SPSS-version 10. Descriptive statistics were used to describe the results. For the comparison of quantative variables indepandant samples t-test and Mann-whitrey u test was applied where appropriate while chi-sequence test was used for the comparison of quantative variables. *p*-value <0.05 was considered as significant.

RESULTS

There were a total of hundred subjects, out of which 50% (group A) were subjected to membrane sweeping and 50 % (group B) didn't undergo this intervention. None of the subjects dropped out or were lost at any point in the study. Both the groups were comparable with respect to age (*p*=0.08), parity (*p*=0.7) and gestational age (*p*=0.9)(Table-1).

Table1: Comparison of baseline characteristics between study.

Variables	Group A	Group B	*p*-value
Age in years (Mean±SD)	24.80±4.35	25.67±4.27	0.8
Parity (Mean±SD)	0.46±0.50	0.413±0.42	0.7
Gestational age (Mean±SD)	40.10±1.30	40.20±1.98	0.9

Table2: Comparison of the outcomes between study.

Outcome Measure	Group A	Group B	*p*- value
Spontaneous Labour	25 (50%)	20 (40%)	0.315
Induction of labour	25 (50%)	30 (60%)	0.315
Vaginal Delivery	39 (78%)	35 (70%)	0.362
Cesarean Section	11 (22%)	15 (30%)	

In group A 25 (50%) subjects went into spontaneous labour while 25 (50%) were induced at 40 weeks plus 5 days of gestation. 39 (78%) patients gave birth vaginally while 11 (22%) had cesarean delivery. In group B, 20 (40%) patients had spontaneous labour while 30 (60%) underwent induction of labour. 35 (70%) patients gave birth vaginally while 15 (30%) had cesarean delivery (Table-2). After membrane sweeping 22 (44%) felt discomfort, 2 (4%) had (4%) bleeding per vaginal bleeding, 1 patient (2%) had irregular labour pains and 1 patient (2%) had leaking per vaginum. Fourteen patients (28%) had more than one complication. 10 (20%) subjects didn't have

any side effects. None of the subjects had fever or neonatal sepsis.

DISCUSSION

A study to identify the effectiveness of sweeping of membranes at 40 weeks of gestation in prevention of post dates pregnancy by improvement in Bishop Score and initiation of labour by Aliya N, Rubina T et al[7] was conducted at Department of Obstetrics and Gynaecology unit 1, Abbasi Shaheed hospital Karachi from October 2007 to March 2008. Their results are dissimilar to our findings. Rate of spontaneous labour in sweeped group in their study was 86% Vs 50% in ours. Rate of induction of labour in sweeped group was 14% vs 50% in our study, 90% had vaginal delivery as opposed to 78% in our study. Only 10% of sweeped women were delivered by cesarean section whereas in our study 22% needed to be delivered by abdominal route. Sweeping of membranes more than once could have affected the outcomes in their study.

A randomized controlled trial carried out by Kashanian M8 and colleagues at department of Obstetrics and Gynaecology, Iran University of Medical Sciences, Tehran evaluated the efficacy of sweeping of membranes for induction of labour in uncomplicated term pregnancies. Like our study this trial showed that the rate of cesarean section in both groups was similar and there was no statistical difference.

A Cochrane systemic review 6 of 22 trials (2797 women) concluded that to avoid one formal induction of labour membrane sweeping must be performed in 8 women. Like our study this review has found that discomfort during vaginal examination and other side effects (bleeding, irregular contractions) were reported more frequently by women allocated to sweeping. There was no evidence of a difference in maternal or neonatal infection.

There are other studies in literature with results contrary to ours. A randomized controlled trial by El-Torkey and Grant[9] found that spontaneous labour occurred more frequently in the sweeped group than the control group (76% vs 38%). There were fewer maternal infections and no difference in the mode of delivery.

A randomized controlled trial carried out at Department of Obstetrics and Gynaecology A.Z.V.U.B Brussels, Belgium[10] found that weekly sweeping of membranes from 39 weeks of gestation results in reduction in the number of inductions needed.

Another randomized controlled trial by Boulvain M and colleagues[6] showed that membrane sweeping group required induction of labour less frequently than control group, but the difference was not statistically significant, as seen in our study also (49% vs 60%).

A prospective randomized controlled trial carried out by Wong and colleagues[11] with main outcome measures same as ours found that the incidence of induction of labour was comparable 33.5% vs 38%. Incidence of cesarean section was comparable too. Seventy percent of women found this procedure was associated with significant discomfort and one third complained of significant pain.

CONCLUSION

Sweeping of membranes is not effective in reducing induction rates in post-date pregnancies, and there is no effect on mode of delivery. It is associated with discomfort, bleeding or leaking per vaginum and irregular labour pains; however, there is no association with maternal febrile illness or neonatal sepsis. Therefore any potential benefits of this intervention must be balanced against risk of maternal discomfort and other adverse effects.

REFERENCES

1. Induction of labour. Evidence–based clinical guideline number 9. Royal College of Obstetricians and Gynaecologists. Clinical effectiveness Support unit London: RCOG Press; 2001.
2. Yeast DJ, Jones A, Puskin M. Induction of labour and the relationship to cesarean delivery: a review of 7001 consecutive inductions. Am J Obstet Gynae 1999, 180:628-33.
3. Hayman R. Induction of Labour. In: David ML, Philip NB. Obstetrics and Gynaecology. 1st Ed . London: Arnold Publishers, 2004: 329-38.
4. Bodner A, Bodner K, Patiesky N, Kimberger O , Challubinski K, Meyer HK . Influence of labour induction of labour induction on obstetric outcome in patients with prolonged pregnancy: a comparison between elective labour induction and spontaneous onset of labour beyond term. Wienklin Wochens chr 2005 Apr, 117(7-8):287-92.

5. Subramanian D, Penna L, Induction of Labour. In: Warren R, Arulkumaran S. Best Practice in Labour and Delivery. 1st Ed. London. Cambridge University Press 2009: 195-206.
6. Boulvain M, Stan C, Irion O, Membrane sweeping for induction of labour. Cochrane Database Syst Rev 2005. 25; (1): (1) 000451.
7. Aliya N, Rubina T, Uzma N. Is membrane sweeping appropriate in modern obstetrics for induction of labour in post dates pregnancies? Pak J Surg 2011; 27(3): 223-28.
8. Kashanian M, Akbarian A, Baradan H , Samiee MM. Effect of membrane sweeping at term pregnancy on duration of pregnancy and labour induction : a randomized trial Gynaecol Obstet Invest 2006; 62(1) : 41-4.
9. El-Torkey M, Grant JM. Sweeping of membranes is an effective method of labour in prolonged pregnancy; a report of a randomized trial. Br J Obstet and Gynaecol 1992 Jun; 99 (6): 455-8.
10. Hamerlynck JV, Middledrop S. From the Cochrane Library: routine membrane sweeping (stripping) for induction of labour in full term pregnancies effective, but not always useful.Ned Tiidschr Geneeskd 2005 Nov 5; 149(45) 2508-10.
11. Wong SE, Hui SK, Choi H, Ho LC. Does sweeping of membranes beyond 40 weeks reduce the need for formal induction of labour? BJOG 2002 Jun; 109 (6): 632-6.

.....