

BISHOP'S SCORE AND INDUCTION OF LABOR IN PROM

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ABSTRACT

As methods of stimulating and controlling uterine activity have become available, there has been a greater enthusiasm for aggressive interventions in PROM. In our prospective study of 79 term patients with PROM induced with oxytocin, we found that a Bishop score of 6 to 8 is more favourable for successful induction. Patients with PROM have a longer latent period of 12.06 + 6.04 hours. In term or near term pregnancy, with PROM and no evidence of infection or obstetric hazard there seems no need to rush for induction of labor.

INTRODUCTION

The term prelabor rupture of membranes (PROM) refers to spontaneous rupture of membranes before the onset of labor. Obstetricians from the very ancient days, were of the opinion that PROM can cause maternal complications, increased operative procedures and neonatal morbidity and mortality. This concern and the availability now of newer methods of induction of labor, have led many an obstetrician to attempt immediate, often aggressive induction. This

study of 79 women with PROM seeks to address the justification of this traditional approach.

SUBJECTS AND METHODS

The study was conducted at the department of Obst. Gynec., SSG Hospital and Medical College, Baroda over a period of one year. The study consisted of a study group of 79 patients at or near term, presenting in labor with PROM and a control group of 79 patients at or near term with intact membranes in labor. Well defined inclusion and exclusion criteria were formulated at the outset. The criteria for

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inclusion were a gestational age of 37 weeks or more, vertex presentation, cervical dilatation of less than or equal to 3 cms and a Bishop's score of 4 or more. Patients in the study group were examined to confirm PROM and observed for one hour for uterine contractions. Induction with 2.5 u of oxytocin was then initiated. Labor progress was monitored on a partogram. Patients in the control group were watched for spontaneous progress of labor. Once delivered, the mother and her newborn baby were watched closely for signs of infection. It was ensured that the study and control groups were well matched in terms of baseline maternal characteristics.

OBSERVATIONS

The incidence of PROM at term in vertex presentation was 4.7%, the overall incidence being 6.3%.

Table 1 shows the relation between Bishop

score and mode of delivery in the study group. With a Bishop score of 4 to 6, 10 (24.30%) primigravidae and 8 (19.51%) multigravidae delivered normally, whereas 15 (36.58%) primigravidae required operative intervention. As the Bishop score increased, the percentage of normal delivery went up in both primi and multigravidae. This association however, was not statistically significant.

Table 2 shows the Bishop score in noninduced control group; comparing table 1 and 2, it is seen that the percentage of assisted deliveries for a given category of Bishop score is higher in the induced study group as compared to the control group. This was statistically significant at a p value of less than 0.05 for Bishop score categories 4-6 and 6-8.

Table 3 shows the outcome of labor in relation to the alert line and action line. In the study group, out of 42 patients who

Table 1
Relation between Bishop's score and mode of delivery in Study Group
(Immediate Induction Group)

Bishop Score category	Gravidity	Normal Delivery		Assisted Delivery		Significance
		No.	%	No.	%	
4 to 6 (n=41)	Primi	10	(24.39)	15	(36.58)	NS
	Multi	08	(19.51)	08	(19.51)	
6 to 8 (n=28)	Primi	08	(28.57)	06	(21.43)	NS
	Multi	09	(32.14)	05	(17.86)	
8 to 10 (n=10)	Primi	03	(30.00)	—		NS
	Multi	06	(60.00)	01	(10.00)	

Percentages have been derived from block totals to each category of score.

NS = Not significant.

Table 2
Relation between Bishop Score and Mode of Delivery in Control Group
(Non-induction Group)

Bishop Score	Gravidity	Normal Delivery		Assisted Delivery	
		No.	%	No.	%
4 to 6 (n=37)	Primi	14	(37.84)	06	(16.22)
	Multi	14	(37.84)	03	(08.10)
6 to 8 (n=36)	Primi	16	(44.44)	02	(05.55)
	Multi	16	(44.44)	02	(05.55)
8 to 10 (n=6)	Primi	04	(66.67)	—	—
	Multi	02	(33.33)	—	—

Percentages have been derived from the block totals for each category of score.

Table 3
Outcome of labor in relation to Alert line & Action line
in Study and Control Groups

Mode of Delivery	Alert Line Crossed				Action Line Crossed			
	Study		Control		Study		Control	
	No.	%	No.	%	No.	%	No.	%
Normal Vaginal	09	(21.43)	11	(50.0)	—	—	02	(18.18)
Forceps/Vacuum	20	(47.62)	10	(45.45)	09	(40.91)	08	(72.72)
C. Section	13	(30.95)	01	(04.55)	12	(59.00)	01	(09.10)
Total	42	(100.0)	22	(100.0)	21	(100.0)	11	(100.0)

37 patients in study group and 57 in control group who delivered before crossing alert line have not been included in this table.

crossed the alert line, 33 (78.78%) required operative delivery; and out of 21 patients who crossed the action line, all required operative delivery. In the control group out of 22 patients who crossed the alert line, 11 (50.0%) delivered normally. Out of the 11 who crossed the action line only 2 (18.18%) delivered normally. Thus it appears here that in patients with PROM who cross the alert line, the chances of

Table 4
Duration of Phases of Labor in Study Group and Control Group

Phase of Labor	Study Group Mean \pm 1 S.D.	Control Group Mean \pm 1 S.D.
Latent Phase (hr.)	12.0 \pm 6.04	8.42 \pm 5.6
Active Phase (hr.)	8.0 \pm 3.2	6.51 \pm 3.4
Deceleration Phase (hr)	1.2 \pm 1.2	0.89 \pm 1.12
Maximum Slope (cm/hr)	1.11 \pm 0.32	1.21 \pm 0.42
First stage (hr)	20.06 \pm 7.2	14.99 \pm 6.7
Second stage (mts)	42.05 \pm 18.12	41.05 \pm 19.25

operative delivery is higher as compared to those with intact membranes.

Table 4 shows the mean duration of the various phases of labor in study and control groups. The latent phase in the study group was longer (12.06 + 5.6 hours). The duration of the other phases of labor in both groups was similar. The phase of maximum slope which is a fine measure of progress of active phase was also similar in both groups. We also found that the chances of a spontaneous vaginal delivery were higher when latent period was longer than 12 hours (data not presented here).

DISCUSSION

This study was conducted to highlight the abnormal events in the labor curve in patients with PROM and to evaluate the concept of immediate labor induction in this group.

comparing the Bishop's in both the groups, we found that the percentage of operative deliveries for a given category of score was higher in the immediate induction group. Kenneth and Kappy in

1982 estimated that a minimum score of 8 is required for successful induction. The chances of arrest in dilatation and effacement is higher when induction is performed at lower scores.

In PROM patients who cross the alert line the chances of operative intervention are higher than in those with intact membranes. In our perusal of literature, we have found no reference to explain this observation (Duriaddeen 1992, Philpott and Castle 1972). We suggest tentatively that in PROM, oxytocin use should be deferred until patient is in active labor or when she has crossed the alert line.

The total duration of first stage of labor in the study group was longer (20.16 + 7.2 hours), primarily due to a longer latent phase. The latent phase constitutes the "warmup" aspect of the preparatory division of labor during which major changes occur. (Kanayam, 1985). Grant & Mahmood (1992) stated that these changes favour efficient labor and spontaneous vaginal delivery. According to him, an optimum latent period should be more than 12 hours for it to

be effective.

RECOMMENDATIONS

In term or near pregnancy with PROM, and no evidence of infection or obstetric hazard, there is no need to rush for induction. Carefully selected indigent patients with an unfavourable cervix may be safely managed in a conservative manner without increased risk of maternal and neonatal infection. (Huff, 1984). Induction of labor should be deferred until a Bishop's score of 6-8 is achieved.

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