Int. J. Pharm. Med. Res. 2014; 2(4):109-112 **ISSN: 2347-7008**

International Journal of Pharmaceutical and Medicinal Research

Journal homepage: **www.ijpmr.org**

Research Article

To study the association between labour admission test and mode of delivery

Richa Kansal*[1], Prerna Panjeta[2], R.Mahendru[3], Isha Bansal[4], Garima Goel[5], Nivesh Agrawal[6]

[1]Asso. Prof., [3]Professor,[4]Lecturer, Dept. of Obst & Gynae, BPS Govt. Medical college for women, Khanpur Kalan, Sonepat, Haryana, India

[2]Demonstrator, Dept. of Biochemistry, BPS Govt. Medical college for women, Khanpur Kalan, Sonepat, Haryana, India

[5]Professor Dept. of Surgery, BPS Govt. Medical College for women, Khanpur Kanal, Sonepat, Haryana, India

[5]Senior Resident, LLRM Medical College, Meerut, India

ARTICLE INFO:

Article history:

Received: 18 June 2014
Received in revised form:
28 June 2014
Accepted: 5 August 2014
Available online: 30 August 2014

Keywords:

Cardiotocography

Labor
Admission test

ABSTRACT

The intrapartum assessment of fetal well being has become an integral part of the management of labour. The cardiotocography has a major role to play in such situations because it is simple, easy to perform, non-invasive, inexpensive and has no contraindications. The Admission CTG thus has two potential roles. It can be used as a screening test in early labour to detect compromised fetuses on admission and to select the women in need of continuous fetal electronic monitoring during labour.

Introduction

CTG is a test that graphically records the fetal heart activity and uterine contractions, simultaneously and continuously, in the same time scale, with fetal movements[1]. The fetal heart rate is obtained via an ultrasound transducer attached to the maternal abdomen. A tocotransducer can also be attached to the maternal abdomen to detect the uterine activity. Both transducers are connected to a cardiotocography machine which produces a two –channel recording on thermal paper, available for interpretation and storage. It is generally agreed that the CTG has a predictive value for fetal outcome and several studies have shown a low false negative rate.

The Admission test, first described by Ingemarsson et al is a short strip (20 minute) of CTG done during labour. It is a dynamic screening test for the state of oxygenation of the fetus on admission of the mother into labour room[2]. It assesses the placental reserve by checking the response of the fetal heart during the phase of temporary occlusion of the utero-placental blood supply under physiological stress of repeated uterine contractions. It thereby assesses the ability of the fetus to withstand the process of labour. Therefore based on the assumption that early uterine contractions may serve as a functional stress to the fetus, an admission test might detect fetal intrauterine hypoxia present already at admission and might have some predictive value of asphyxia that might develop in early labour.

The normal fetal heart rate at term is 110-160 beats per minute (bpm)[3]. It exhibits periodic variations resulting from autonomic influences. A normal pattern includes baseline variability of 5-25 bpm and at least 2 accelerations in a 20 minute period. An acceleration is an increase in FHR from the baseline by 15bpm for 15 seconds or more[4]. A normal pattern reflects a metabolically and functionally intact fetal central nervous system.

A deceleration is a reduction in the FHR by 15 bpm from the baseline for 15 seconds or more. Decelerations indicate episodes of fetal stress[5]. Early decelerations coincide with the duration of uterine contractions and are common in late first stage and second stage of labour when the fetal head is compressed during its descent through the pelvis[6]. Late decelerations last beyond the duration of a contraction and reflect a reduction of blood flow into the uteroplacental pool, causing transient fetal hypoxia. Variable decelerations reflect fetal umbilical cord compression[**7]**.

The National Institute of Clinical Excellence (NICE) and the Royal College of Obstetricians and Gynaecologists (RCOG) have categorised the FHR features and traces as normal, suspicious and pathological[3].

***Corresponding author:** Dr. Richa Kansal, Dept. of Obst. & Gynae, BPS Govt. Medical College Khanpur Kalan, Distt. Sonepat, Haryana., India

Table 1: Categorisation of fetal heart rate traces[3]

Category	**Definition**
Normal	A cardiotocograph where all four features fall into the reassuring category
Suspicious	A cardiotocograph whose features fall into one of the nonreassuring categories and the remainder of the features are reassuring
Pathological	A cardiotocograph whose features fall into two or more nonreassuring categories or one or more abnormal categories

Table 2: Categorisation of fetal heart rate (FHR) features

Feature	**Baseline (bpm)**	**Variability (bpm)**	**Decelerations**	**Accelerations**
Reassuring (Normal)	110–160	≥ 5	None	Present
Non-reassuring	100–109 161–180	<5 to >40 for <90 minutes	Early deceleration Variable deceleration Single prolonged Deceleration upto 3 minutes	The absence of accelerations with an otherwise CTG is of uncertain significance
Abnormal (Pathological)	<100 > 180 Sinusoidal pattern >10 minutes	<5 for >90 minutes	Atypical variable decelerations Late decelerations Single prolonged deceleration >3 minutes	

There is considerable body of clinical literature that supports the use of admission test in the management of labour. The present study has examined the role of admission test in predicting the mode of delivery. CTG recordings of both high risk and low risk pregnant women were studied and the result was correlated with the labour outcome. The results were statistically analysed and the diagnostic value of admission test in terms of sensitivity and specificity in predicting the labour .

Material and methods

Females with Pregnancies > 32 weeks and <41 weeks of gestation irrespective of the parity in early spontaneous labor, singleton pregnancies, cephalic presentations which came in labor room of LLRM Medical College, Meerut, and BPS Govt. Medical College, for women, Khanpur Kalan, Sonepat, are included in study. Pregnancies with known congenital anomalies, multiple pregnancies, malpresentations, sedative usage in mother before testing, false labour pains, patients with an admission – delivery interval more than 24 hours and patients undergoing elective caesaerean section were excluded from study.

The patients admitted to the labour ward were confirmed to be in labour by demonstrating either of the following-

1). Painful uterine contractions.
2). Show.
3). Demonstrable cervical changes in terms of effacement and dilatation.
4). Rupture of membranes.
5). CTG showing uterine contractions.

All patients admitted for induction had cervical priming with intracervical prostaglandin E2 gel. The admission test for these patients was done once they started having uterine contractions.

A preliminary history was taken and a general and obstetric examination done. The patients will then be subjected to a 20 min CTG recording (paper speed 1cm/min) on a corometrics 170 series machine. The results of the admission test were categorised into normal, suspicious or pathological groups as per the RCOG guidelines[18] for the interpretation of CTG tracings.

Observation and discussion

Table 3: Age distribution of patients studied

Age in years	Number	%
< 20	8	1.6
21-25	83	16.6
26-30	276	55.2
31-35	122	24.4
> 35	11	2.2
Total	500	100.0

In the above table it is evident that the maximum number of patients belonged to 26 – 30 years age group followed by 31 – 35 years and 21-25 years age group. There were only 11 patients in the > 35 years age group and 8 patients in the < 20 years age group.

Period of gestation in weeks

The maximum numbers of patients were in the 37 – 40 weeks gestation group followed by 32 – 37 weeks gestation group. There were only 19 patients in the 40-41 weeks gestation group.

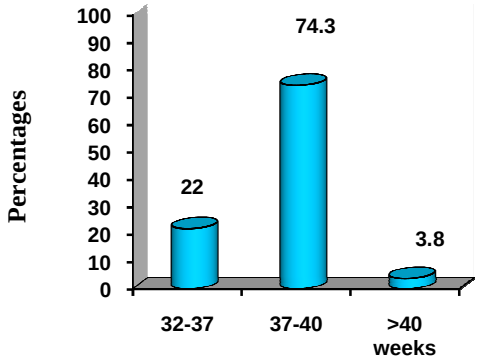

Figure 1: Period of gestation (weeks**)**

Table 4: Association of Admission test and mode of delivery

Admission test	Number of cases	Mode of delivery		
		Normal	Instrumental	LSCS
Normal	401	247(61.6%)	32(8%)	122(30.4%)
Suspicious	62	20(32.3%)	3(4.8%)	39(62.9%)
Pathological	37	3(8.1%)	-	34(91.9%)
Total	500	270(54.0%)	35(7.0%)	195(39.0%)
Inference	Suspicious and Pathological admission test is significantly associated with LSCS with P<0.001**			

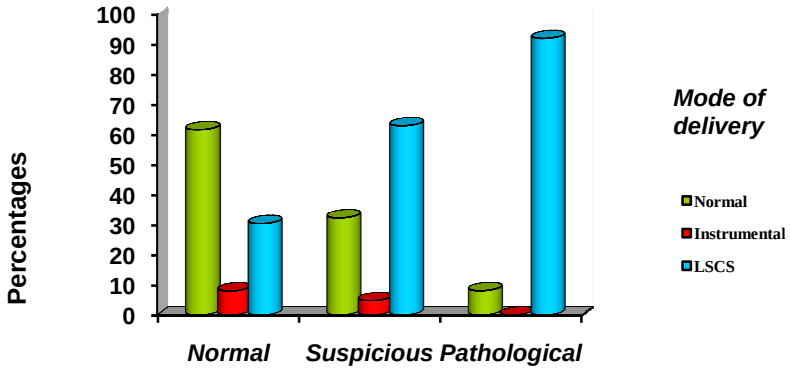

Figure 2: Admission test

The above chart shows the association of labour admission test with the mode of delivery. Among the patients with a normal admission test, most had a normal delivery (61.6%). 30.4% patients underwent emergency LSCS and only 8% had instrumental delivery. Among the patients with a suspicious admission test, most had a caesarean delivery (62.9%). 32.3% patients had normal delivery and only 4.8% had instrumental delivery. Among the patients with a pathological admission test, most had a caesarean delivery (91.9%). Only 8.1% patients had normal delivery and no one had instrumental delivery. The P value in the above association is <0.001 and thus the inference is that the suspicious and pathological admission test is significantly associated with LSCS.

Conclusion

Thus from the above data a clear trend is seen as the number of normal deliveries decreases and the number of LSCS increases as the admission test changes from normal to pathological. The most common mode of delivery in the normal admission test is normal vaginal delivery whereas caesarean section is most common in suspicious and pathological traces. The number of instrumental deliveries also decreases from normal to the suspicious pattern becoming nil in the pathological group.

Acknowledgement

We acknowledge the patients and management of BPSGMC(W) for their cooperation.

References

[1]. Blix E, Reine L M, Klovning A, Oian P. Prognostic value of the labour admission test and its effectiveness compared with auscultation only : A systematic review. BJOG 112: 1595-1604, 2005.

[2]. Ingemarsson I, Arulkumaran S, Ingemarsson E, Tambyraja RL, Ratnam SS. Admission test : a screening test for fetal distress in labour. Obstet Gynecol 68 : 800-806, 1986.

[3]. The use and interpretation of cardiotocography in intrapartum fetal surveillance. Evidence-based Clinical Guideline Number 8. RCOG, 2001.

[4]. Freeman RK, Garite TH, Nageotte MP. Fetal heart rate monitoring, 3rd ed. Philadelphia, Lippincott Williams and Wilkins, 2003.

[5]. Park MI, Hwang JH, Cha CJ, Park YS, Koh SK. Computerized analysis of fetal heart rate parameters by gestational age. Int J of gyne and obstet 74 : 157-164, 2001.

[6]. Babazadeh R, Abdali K, Lotfalizadeh M, Tabatabaie HR. Diurnal non stress test variations in the human fetus at risk. Int J of gyne and obstet 90 : 189-192, 2005.

[7]. Malik N, Raghunandan C, Madan N. Foetal heart rate patterns in early labour in low and high risk pregnancies and its correlation with perinatal outcome. J Indian Med Assoc 100(11): 649-655, 2002.

Source of support: Nil, Conflict of interest: None Declared