



ROLE OF ADMISSION TEST IN ASSESSMENT OF FOETAL OUTCOME DURING LABOUR

Gynaecology

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ABSTRACT

BACKGROUND: Prevention and treatment of fetal asphyxia is one of the main aims of perinatal care. Intrapartum events account for 20% of still births, 20-40% of Cerebral palsy & 10% of severe mental retardation. So, it is necessary to identify the mother who is genuinely “low risk” but develops intrapartum hypoxia, So that proper allocation of available resources and man power could be done. Admission test (A.T.) is one such non-invasive technique by which a short 15-20 minutes external electronic fetal monitoring on admission in early labour can be used as a screening test to identify a sub group of fetuses with hypoxia present on admission or those who were likely to become hypoxic in the next few hours of labour. So, the present study was conducted with aim to study the role of admission test (A.T.) as a screening test for prediction of fetal outcome and to detect the fetus with intrauterine hypoxia present already at the time of admission.

MATERIALS AND METHODS: To prove the efficacy of admission test in prediction of fetal jeopardy in utero in early labour and its application in improving fetal outcome. This randomized prospective study was carried out in 100 patients attending to ASRAM Hospital, Eluru. This study was conducted over a period of 6 months from Mar-2013 to Aug 2013.

RESULTS: Out of 100 patients 57% belong to 21-25 yrs, 32% belong to 16-20 years and the rest 11% is above 25 years. Majority of cases in the study population were Primigravidae (59%). AT was reactive in 42% of women of age group 21-25yr. AT was equivocal in 25% of women of age group 16-20yr. AT Was 18.8% Non-reactive in women of age group >25 years.

CONCLUSION: The test is good at predicting the fetus that does not require acute or premature obstetric intervention. In conclusion, it can be implied that “Admission test” is a simple reliable and non- Invasive method to screen large number of patients in busy hospitals.

KEYWORDS:

INTRODUCTION:

Prevention and treatment of fetal asphyxia is one of the main aims of perinatal care. Intrapartum events account for 20% of still births, 20-40% of Cerebral palsy & 10% of severe mental retardation. It has been observed that intrapartum fetal hypoxia is one of the potential risk factors involved in perinatal mortality and future developmental handicaps¹.

The development of an effective test for assessing antepartum fetus could allow intervention before fetal death or asphyxic damage. Risk assessment based on antepartum factors alone is often insufficient for patient selection as intrapartum fetal morbidity & mortality are not uncommon in a low-risk population. (Ingemarsson et al 1986, Hobel et al 1973)².

So, it is necessary to identify the mother who is genuinely “low risk” but develops intrapartum hypoxia, So that proper allocation of available resources and man power could be done.

Admission test(A.T.) is one such non-invasive technique by which a short 15-20 minutes external electronic fetal monitoring on admission in early labour can be used as a screening test to identify a sub group of fetuses with hypoxia present on admission or those who were likely to become hypoxic in the next few hours of labour³. The A.T. also gives idea of those patients who require continuous electronic fetal monitoring.

OBJECTIVES:

1. To study the role of admission test (A.T.) as a screening test for prediction of fetal outcome.
2. To detect the fetus with intrauterine hypoxia present already at the time of admission.

MATERIALS AND METHODS:

To prove the efficacy of admission test in prediction of fetal jeopardy in utero in early labour and its application in improving fetal outcome.

This randomized prospective study was carried out in ASRAM Eluru. Period of study: This study was conducted over a period of 6 months from Mar-2013 to Aug 2013

Inclusion criteria: Patients irrespective of Parity, Presentation both normal and high risk with Period of gestation >36 weeks and in first stage of labour (<4 cm of cervical dilatation).

Exclusion criteria: 1. Admitted in late labour. 2. Patients for elective caesarean section.

100 patients were included in this study at random. Patients selected were both normal as well as high risk admitted in early labour irrespective of parity and presentation with gestational age more than or equal to 36 wks. Careful history regarding the LMP, parity and brief previous obstetric history was taken. A thorough clinical examination and obstetric examination and pelvic assessment was done. They are subjected to NST.

After 20 minutes of conventional NST on admission in labour, and consequent FHR changes noted and interpreted. Results were kept in a concealed manner. These patients were followed up to delivery in labour room by intermittent auscultation due to lack of adequate equipment for continuous monitoring. Progress of labour and important events like development of fetal distress on auscultation, colour of liquor, mode of delivery, APGAR score at 1 and 5 min were noted. The placenta was examined for infarcts and other anomalies. Mother and baby are followed till discharge.

RESULTS:

Out of 100 patients 57% belong to 21-25 yrs, 32% belong to 16-20 years and the rest 11% is above 25 years. Majority of cases in the study population were Primigravidae (59%). The study group comprised of 100 pregnant patients with gestational age more than 36 weeks with vertex presentation in labour with both normal and high risk patients. The majority of the study group had reactive admission test (73%).

21% had equivocal A.T. and 6% had non-reactive A.T.

It is observed that there was no correlation found between the preexisting maternal risk factors and admission test FHR patterns. In fact, Reactive pattern was observed in about 75% of high risk study population compared to 69% of low risk mothers. In the same way, abnormal A.T. FHR patterns were found in 24% of high risk mothers and 31% in low risk mothers.

In the reactive group of 73 patients, 10 babies had APGAR < 7 at 1 min, out of which 9 babies improved quickly to > 7 at 5 min. In the equivocal group of 21 patients, 14 cases had APGAR < 7, out of which only 7 cases had improved with APGAR > 7, in 7 cases APGAR score remained below 7, out of which one baby had died. In the Non-reactive group of 6 cases, 5 cases show APGAR < 7 at 1 min and all cases remained with APGAR < 7 even after 5 min, out of which one baby had died.

Out of 73 cases in reactive A.T. 7 (9.5%) had fetal distress at birth, out of 21 cases in equivocal A.T. 4 (19.4%) had fetal distress, out of 6 cases of Non-reactive A.T. 3 (50%) had fetal distress. The incidence of fetal distress gradually increased to 50% with non-reactive A.T. With non-reactive A.T. the incidence of fetal distress increased in an alarming way. This fetal distress was more consistent with Non-reactive A.T. than suspicious A.T.

DISCUSSION:

A small strip of electronic FHR recording by external electronic fetal monitoring for a period of 15 to 20 minutes on admission in labour room for a patient in labour before 4cm of cervical dilatation is called as screening A.T. The duration of an A.T. can be as short as 5-10 minutes if one could identify base line rate, variability and two contraction with no FHR changes. Interpretative criteria in various series varied widely, minimum of two accelerations of 15 bpm lasting for 15 seconds in 20 minute period have been used in most of the studies (Ingemarsson et al, 1986). In our present study we have used the same.

A.T. can be used to screen low risk patients to select those for continuous electronic fetal monitoring and or more stringent auscultation. It can detect fetal distress already present on admission and unnecessary delay in intervention can be avoided. It is a good alternative to label low risk patients for FHR monitoring on the basis of an antenatal risk classification.

In most of the studies A.T. showed higher rates of reactive FHR patterns as shown in table-1. In the Present study % Reactive FHR pattern is correlating with the other reported figures. Equivocal A.T. are reported in some studies as shown in Table -2. In our study % Equivocal FHR patterns are in par with the other reported studies. Non-reactive patterns observed on A.T. in various studies are as shown in table-3. In our study also the observed % Non-Reactive FHR patterns were almost the same as reported by others.

As shown in table-4 the percentage of abnormal delivery outcomes found to be increased following abnormal A.T. which became obvious in our study also. As shown in table-5 the specificity i.e ability to identify correctly those who are not at risk for Fetal distress (i.e true negatives) was high. However sensitivity, i.e ability to detect correctly true positives was low. The present study also the specificity and sensitivity figures are in par with the reported studies.

CONCLUSION:

The present study suggest that the Admission test might be a good predictor of foetal wellbeing during the next few hours in term fetuses except for acute events in low risk population. Today with electronic foetal monitoring the incidence of operative delivery is certainly on the rise. Admission test is a simple, non-invasive method, which can be performed with minimal training. It is an effective screening test for fetal wellbeing. It is less time consuming and has no contraindications and has no ill effects on fetus or mother. The advantages are its acceptability and its cost effectiveness. The non-reactive A.T. has to be further evaluated by VAST and Maternal fluid replacement so as to improve positive predictive value. Non-reactive tests are associated with statistically significant increase in Caesarean section rate for fetal distress. Non-reactive patterns correlate with significantly poor perinatal outcome in terms of fetal distress, low APGAR scores, admission to neonatal intensive care unit, neonatal seizures, low birth

weight and perinatal mortality. A.T. has high degree of negative predictive value, which suggests that it is better in ruling out fetal compromise. The test is good at predicting the fetus that does not require acute or premature obstetric intervention. In conclusion, it can be implied that "Admission test" is a simple reliable and non-invasive method to screen large number of patients in busy hospitals.

TABLE NO:1

STUDY	TOTAL CASES	% REACTIVE FHR
Ingemarsson et al (1988)	766	92.42
NWM Hospital (1994-95)	100	58
LTMG Hospital (1997)	200	84.5
PRESENT STUDY (2013)	100	73

TABLE NO: 2

STUDY	TOTAL CASES	% EQUIVOCAL FHR
Ingemarsson et al (1988)	766	6.65
NWM Hospital (1994-95)	100	32
LTMG Hospital (1997)	200	9.5
PRESENT STUDY (2013)	100	21

TABLE NO: 3

STUDY	TOTAL CASES	% NON-REACTIVE FHR
Ingemarsson et al (1988)	766	0.91
NWM Hospital (1994-95)	100	9
LTMG Hospital (1997)	200	6
PRESENT STUDY (2013)	100	6

TABLE NO-4:

STUDY	NUMBER OF FETAL DISTRESS CASES		
	REACTIVE	EQUIVOCAL	NON-REACTIVE
NWM Hospital (1994-95)	1	10	8
LTMG Hospital (1997)	6	3	9
PRESENT STUDY (2013)	7	4	3

TABLE NO-5:

STUDY	SENSITIVITY %	SPECIFICITY %
Ingemarsson et al (1988)	23.5	99.4
LTMG Hospital (1997)	66.7	90
PRESENT STUDY (2013)	50	76.74

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