

ROUTINE USE OF NON-STRESS TESTING TO IMPROVE NEONATAL OUTCOME

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SUMMARY

We have reaffirmed the usefulness of NST in assessment of fetal health in a high risk pregnancy. Because of its safety and non-invasiveness we have used it to screen pregnancies without any obvious risk factor and we obtained significantly improved neonatal outcome.

70 patients in the High Risk group underwent NST as a part of their routine work up at 35 weeks and repeated weekly thereafter if the pattern was Reactive or repeated the next day if pattern was (NR) (BR) or silent. In 600 patients without any obvious risk factor, NST was not done in 300 patients (Control Group); NST was done in the remaining 300 patients. (Study Group), 1st NST at 36 weeks and not repeated again if pattern was Reactive. NST was repeated in the next 24 hrs if the pattern was (NR) (BR) or silent. We had no babies with low apgar scores, no still births or neonatal deaths in the study group. Control group had 2.66% low apgar babies, 0.66% still births and 1% neonatal deaths. We thus prove that in addition to other methods in use, NST is a useful and safe screening test to assess fetal health in all patients and improve neonatal outcome.

Introduction

Electronic Fetal Heart Rate Monitoring (EFHRM) to a major advance in assessing the fetal condition, both before and during labour and this advance has helped to change Obstetrics from an art to a science over the last 25 years.

If properly applied with additional techniques of fetal scalp blood sampling for acid based determination and use of real - time ultrasound, EFHRM should

decrease intrapartum fetal morbidity and should prevent fetal death. Ominous patterns on the graphic record alert the Obstetrician well before the onset of labour and this is a distinct advantage of the Non-stress testing.

Aims of Study

1. Since NST has no contra-indication for its performance and is safe and non-invasive we have used it to screen all pregnancies beyond 36 weeks, without any obvious risk factors and we

aim to review our experience with the use of EFHRM to bring about significant improvement in neonatal outcome.

2. The difference in the morbidity and mortality in patients who underwent an NST as against those who did not undergo NST as a routine procedure is compared.
3. The usefulness of NST in a high risk pregnancy is re-affirmed.

Material and Methods

This is a prospective study of a total of 670 patients attending the Antenatal Clinic at Dr. Sita Bhateja's Nursing Home between 1/8/87 to 1/8/88. The patients were grouped into

- 1 Study Group (300) — No Risk NST done
- 2 Control Group (300) — No Risk NST not done
- 3 High Risk Group (70) — NST done as Routine work-up

(Included cases of PET, BOH, IUGR, Diabetics, Post-dated)

Sonic Aid FM3R Fetal Monitor was used to perform the Non-stress test with two external transducers.

Test Period: Until 3 fetal movements or for a maximum of 45 minutes.

Patient position: Semi Fowler or left lateral and subjective feeling of fetal movement was marked on the graph sheet and corresponding fetal heart accelerations noted.

Graphic patterns classified according to standard criteria into Reactive (R), Non-Reactive (NR), Borderline (BR) and Silent/sleep (S).

Test Protocol: 1) Control Group - NST not done, 2) Study Group - 1st NST at 36 weeks, If (R) Not repeated, If (NR) (BR) or (S) - repeated next day. 3) High Risk Group - 1st NST at 35 weeks, If (R) Repeated weekly, If (NR) (BR) or (S) - Repeat next day.

Such patients were admitted, asked to keep a kick count, advised rest in bed in lateral position to give maximal kick count and given glucose infusions if required.

RESULT - I

	Apgar Scores			Still Births	Neonatal Deaths
	0-3	4-6	7-10		
Study Group	—	45 15%	225 85%	—	—
Control Group	10 3.66%	60 20%	230 76.66%	2 0.66%	3 1%
High Risk Group	14 20%	20 28.5%	25 50%	1 1.4%	2 2.85%

RESULT - II
RESULTING PATTERNS AND MODES OF DELIVERY

	<i>No. of Pts High Risk Study</i>	<i>Normal</i>	<i>Forceps</i>	<i>LSCS</i>
R	20+258	10+182	6+58	4+18
NR	4+4	0+2	2+0	2+2
BR	30+26	14+12	0+8	16+6
S	16+12	2+2	11+4	3+6
Total	70+300	26+198	19+70	25+32

RESULT - III
RESULTING PATTERNS AND APGAR SCORES

	<i>No. of pts High Risk Study</i>	<i>0-3</i>	<i>4-6</i>	<i>7-10</i>
R	20+258	0+0	9+28	11+230
NR	4+4	3+0	1+2	0+3
BR	30+26	7+0	5+8	18+10
S	16+12	5+0	5+7	6+12
Total	70+300	15+0	20+45	35+255

Conclusion

It is seen that timely interference on identifying a fetus in jeopardy in the study group reduced significantly the number of babies with low Apgar Scores and in this group, the still Birth and neonatal deaths were zero compared to the other two groups. Thus we obtained significantly improved neonatal outcome in the group in which NST was used as an added pregnancy screening tool the safety and non-invasive technique of NST justifies its use in all routine cases. But one must bear in

mind the large number of false positive results and refrain from unnecessary interference unless the ominous pattern on the graph is confirmed on repeat NST and correlated with other fetal well being studies.

Co-relation of NST patterns with modes of delivery and Apgar Scores is only to show that Reactive NSTs are reassuring of fetal well-being and have the maximum number of normal vaginal deliveries, babies with good Apgar Scores.