

ROLE OF NST IN THE MANAGEMENT OF POSTDATISM

By

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SUMMARY

Non-stress test was performed on 60 postdated patients. The reactive NSTs were repeated every two days till delivery. Ultrasound was done on all patients with non-reactive NSTs. Amniotic fluid pocket of less than 1 cm on ultrasound was considered as oligohydramnios.

All the patients with a non-reactive NST pattern were managed actively and the perinatal outcome was studied.

The false negative rate was just 4.5%. The false positive rate was 62.5% which decreased to 50% when amniotic fluid volume was considered along with NST pattern. The test sensitivity was 75% and the specificity was 80.7%.

Thus a reactive NST was found to be a good predictor of fetal well being. A non-reactive test along with oligohydramnios diagnosed on ultrasound, was a better predictor of fetal distress than NST alone.

Introduction

A post-term pregnancy by definition is one which extends beyond 42 weeks or 294 days from the first day of the last menstrual period. Postdatism increases the risk of intrauterine foetal jeopardy and neonatal problems.

Assessment of fetal well being in postdated patients by fetal heart rate monitoring (Lee *et al.*, 1976) is a simple, non-invasive and convenient method. The present study was primarily undertaken to evaluate the role of non-stress test in

the management of high risk postdated pregnancies.

Material and Methods

A total of 658 pregnant women were examined. Of these 60 women who were sure of their dates or in whom an early ultrasound had been done to confirm the gestational age, were found to be postdated. These patients were divided into three groups depending on their gestational age—those who were postdated by 42 weeks, 43 weeks or 44 weeks and more.

Non-stress test was carried out in all the patients. A corometrics 112 Fetal monitor manufactured by Corometrics Medical System, Inc., U.S.A. was used to

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perform the test. A reactive pattern was one which showed an increase in heart rate of 10-15 beats/minute lasting for 10-15 seconds with a good beat to beat variability.

A pattern not fulfilling these criteria was considered as non-reactive.

In all patients with a reactive NST pattern, the NST was repeated every 2 days. The non-reactive group was subjected to a real time linear sonographic examination mainly to look for adequacy of liquor, to confirm the gestational age and for placental grading. A pocket of liquor measuring more than 1 cm in sagittal section was considered as adequate liquor volume.

Depending on the NST pattern the choice between conservative or active management was made. The perinatal outcome was studied and correlated with the NST pattern. Finally the incidence of false positive and false negative was determined.

Results

The incidence of postdatism in the present series was 9.2%.

As seen in Table I the maximum number of patients (63.33%) were found to be in the group which was postdated by 42 weeks.

TABLE I
Gestational Age Incidence

Gestational age	No. of pregnancies	Per cent
42 weeks	38	63.33
43 weeks	17	28.33
44 weeks	5	8.33

As indicated in Table II the group postdated by 42 weeks had a reactive NST pattern in 81.6% of the patients.

The maximum percentage (60%) of non-reactive NST patterns were found in the group postdated by 44 weeks or more.

TABLE II
NST Outcome in Relation to Weeks of Gestation

Gestational age in weeks	NST pattern	
	Reactive	Non-reactive
42	31 (81.6%)	7 (18.4%)
43	11 (64.7%)	6 (35.3%)
44	2 (40%)	3 (60%)
Total	44	16

In the reactive group 59.1% delivered without any interference (Table III). In the non-reactive group all the patients were managed actively except one case of anencephaly.

TABLE III
Mode of Management

NST pattern	Mode of Management	
	No interference	Active management
Reactive	26 (59.1%)	18 (40.9%)
Non-reactive	1 (6.3%)	15 (93.7%)

In the reactive group 75% of the patients had a normal delivery without any interference as compared to 56.3% in the non-reactive group (Table IV).

The rate of operative delivery was found to be higher in the non-reactive group.

Table V shows the correlation of the fetal outcome with the NST pattern and the ultrasound findings. Only two of the babies from the reactive group were found to be distressed giving a false negative rate of 4.5%.

Of the 10 patients with non-reactive NST and normal amniotic fluid volume, 3 were found to be distressed. Of the 6

TABLE IV
Mode of Delivery

NST pattern	Normal	Vacuum/ Forceps	Lower segment caesarean section
Reactive	33 (75%)	6 (13.6%)	5 (11.4%)
Non-reactive	9 (56.3%)	3 (18.7%)	4 (25%)

TABLE V
NST/Ultrasound—Fetal Outcome

Test	Total Number	Fetal distress and/or Apgar <7 at 5 minutes	False negative	False positive
1. Last reactive NST	44	2	4.5%	
2. Non-reactive NST	16	6		62.5%
(a) Non-reactive NST with normal amniotic fluid volume	10	3		70%
(b) Non-reactive NST with oligohydran- nios	6	3		50%
	Sensitivity	75%		
	Specificity	80.7%		

patients who had associated oligohydrannios, 3 babies had Apgar less than 7 at 5 minutes.

The false positive rate of NST alone was 62.5% whereas with ultrasonic assessment of decreased liquor volume the rate fell to 50%. Hence NST with USG is a better predictor of fetal distress. The sensitivity was found to be 75% while the specificity was 80.7%.

Discussion

Over the past decade antepartum fetal heart rate testing has become an integral part of the management of postdated pregnancy. The contraction stress test has given way to non-stress test for fetal surveillance due to its proven reliability and low false negative rates.

In this study a reactive NST was found to be predictive of good fetal outcome in

95.5% cases giving a false negative rate of 4.5% which compares favourably with a false negative rate of 2.2% (Weingold and Yonekura, 1980) and 2% (Manning *et al*, 1984). In contrast, NST when used alone was a poor predictor of intra-partum fetal distress, giving a false positive rate of 62.5%. Similar studies elsewhere have shown false positive rates in the range of 87.5% (Weingold and Yonekura, 1980) and 87% (Manning *et al*, 1984). However, in combination with ultrasonic assessment of amniotic fluid volume the false positive rate fell to 50%.

The sensitivity of the test in our study was found to be 75% and the specificity was 80.7%. Manning *et al* (1984) in their study got a test sensitivity of 57% and specificity of 85%. Flynn and Kelly (1977) showed sensitivity of 59% and specificity of 85%.

Conclusion

In conclusion, a reactive NST is a good predictor of fetal well being. The sensi-

tivity and specificity of a non-reactive NST can be increased by using ultrasound for the assessment of amniotic fluid volume along with it. This combination has effectively decreased the need for contraction stress testing and biophysical profile (Manning *et al*, 1984) as they are faster, simpler, less subject to equivocal results, non-threatening and convenient tests which can be repeated easily.

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