



A Study on Fetal Wellbeing through the Non-Reactive Non-Stress Test in the Patients Referred to Motazedi Hospital, Kermanshah, Iran

Maryam Zangeneh^{1,2} and Mohsen Takesh^{2*}

^{1,2}Department of Obstetrics and Gynecology, Kermanshah University of Medical Science, Iran

²Kermanshah University of Medical sciences, Iran

Submission: March 22, 2017; **Published:** April 06, 2017

***Corresponding author:** Mohsen Takesh, Department of Obstetrics and Gynecology, Kermanshah University of Medical sciences, Kermanshah, Iran, Email: mohsen.takesh@gmail.com

Abstract

A non-stress test is the first step to determine fetal well being. This study was conducted on 323 pregnant patients, referred to Motazedi hospital, Kermanshah, Iran, to justify the non-stress test's strength. 33.1% were stricken by a fetal distress and 9.9% by meconium passing, around 5% by an Apgar elows even, 5.3% were hospitalized at the NICU, and 86.4% were delivered by the cesarean section. It is believed that studied communities' size might explain the difference between our results and past ones.

Keywords: Non-stress test; Amniotic fluid; Fetal distress; Perinatal mortality

Abbreviations: NST: Non-Stress Test; AFV: Amniotic Fluid Volume; NICU: Neonatal Intensive Care Unit

Introduction

Since 1975, the non-stress test (NST) has been applying as a first step to assess fetal well being. Over past decades, antepartum fetal heart rate testing has become an integral part in high-risk pregnancy management. During this time, the contraction stress test has given way to the non-stress test for primary fetal surveillance due to its proven reliability and its low false negative rate [1-4]. The main feature of normality to interpret the testis FHR accelerations, i.e., reactive tracing. Accelerations, which resemble aspike-like or transitory increase above baseline as a result of sympathetic nervous system stimulation, have been shown to be reassuring both antepartum and intrapartum [1,2,5-7], and indicate a non-acidotic fetus [1,8].

The suggested optimum number of accelerations varies in the literature from one to five over a period of 20 or 30 minutes [9-11]. In contrast, the absence of accelerations (non-reactive tracing) is considered suspicious, and management of a non-reactive NST first requires extension of the recording time to 40-50 minutes. Clinical evaluations performed on shorter time intervals may be misleading [1,12,13]. However, this investigation was conducted to make an appropriate evaluation

for the non-reactive NST applicability in order to predict fetal healthy, necessity of an operation special method during parturition, consideration of essential schemes and so on.

Material and Methods

To determine a pregnancy outcome, fetal characteristics and their status through the non-reactive NST, which was performed on 323 pregnant patients with a gestational age over 28 weeks, referred to Motazedi hospital, Kermanshah, Iran, a bipartite form was prepared that the first part was completed at the beginning of hospitalization to consider a maternal age, a gestational age, the history of a previous or a background disease, a reason for performing the test, and the amniotic fluid volume (AFV), and the second one while patient-releasing for gestational finalization, a manner of labour, a fetal distress (meconium passing, tachycardia, bradycardia), infant weight, an infant Apgar, perinatal mortality and hospitalization at the neonatal intensive care unit (NICU). The patients were between 15-46 years old (mean=25.33, STD=5.573, (Figure 1)) and the gestational age was between 37-42 weeks (mean=38.49, STD=2.007, (Figure 2)). Data analysis was statistically performed using the program SPSS (version 16 for Windows; SPSS Inc. Chicago, IL).

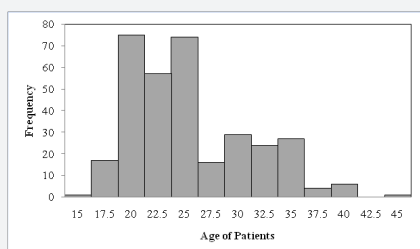


Figure 1: Frequency of patients' age referred to Motazedi hospital for NST performance.

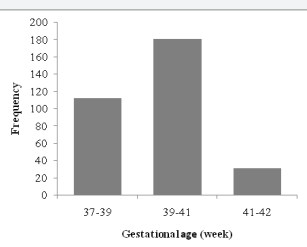


Figure 2: Frequency of gestational age of patients for NST performance.

Results

Reason of performing NST

Out of 323 women, 53 individuals (16.4%) as a result of post dating, 113 persons (35%) because of decreased fetal movement, 126 (39%) for pain, eleven (3.4%) due to a vaginal discharge (suspect in membrane rupture), two (0.6%) due to hemorrhage, eleven(3.4%) as a consequence of decreasing the AFV in the sonogram, two (0.6%) because of a preceding weak NST, two (0.6%) as a result of the diabetes, and three (0.9%) due to fetal wellbeing screening referred to Motazedi hospital, Kermanshah, Iran (Table 1).

Table 1: Frequency and percent age of doing the non-stress test in 323 pregnant patients.

Reason of Reference	Frequency	Percentage
Postdate	53	16.4
motion-diminution	113	35
Pain	126	39
vaginal discharge	11	3.4
Hemorrhage	2	0.6
AF-decreased	11	3.4
History of weak NST	2	0.6
Diabetes	2	0.6
referral of specialist	3	0.9

Volume of amniotic fluid

One (0.3%), 269 (83.3%), 53 (16.4%) patients had increased, normal and decreased AFV in the sonography, respectively.

Accompanying diseases

300 cases (92.9%) had no background disease, 13(4%) suffered from a gestational hypertention, 7(2.2%) from the diabetes, and three (0.9%) were afflicted by both.

Fetal distress during labor

32 cases (9.9%) struck by the meconiumstain and 107 ones (33.1%) by the tachycardia or bradycardia during the labor.

Perinatal mortality

Six cases (1.9%) had perinatal mortality and 17 ones (5.3%) were hospitalized at the NICU.

Methods of termination of pregnancy

All cases were finalized the pregnancy. Two out of them (0.6%) had an instrumental delivery, 42(13%) through a normal vaginal delivery (NVD), and 279 (86.4%) by means of cesarean (Figure 3), out of which 56 specimens (20.07%) had a history of cesarean section (repeat CD) (Table 2).

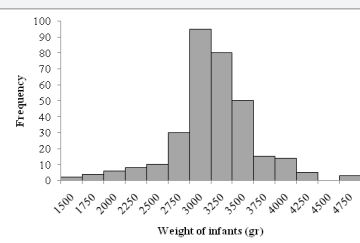


Figure 3: Frequency of newborn infants' weight of pregnant patients for NST performance.

Table 2: Frequency and percentage of Methods for termination pregnancy in 322 pregnant patients.

Methods	Frequency	Percentage
Instrument	2	0.6
NVD	41	12.7
Caesarean	279	86.4

Apgar in newborn infants

First minute Apgar: one case (0.3%) had a low Apgar (0-3), 13 ones (3.9%) had a medium Apgar (4-6), and 309 ones (95.6%) had a high Apgar (7-10).

Fifth minute Apgar: one case (0.3%) had a low Apgar (0-3), two (0.6%) had a medium Apgar (4-6), and 320(99%) had a high Apgar (7-10) (Table 3).

Table 3: Frequency and percentage of Apgar in new born infants in two stages-one minute and five minutes after birth.

Apgar	Low (0-3)	Medium (4-6)	High (7-10)
First minute	1(0.3%)	13(3.9%)	308(94.3%)
Fifth minute	1(0.3%)	2(0.6%)	319(98.7%)

Weight of infants and hospitalization at NICU

The infants' weight was between 1500-4650 grand 17 newborns (5.3%) were hospitalized at NICU (mean=3144.25, STD=463.9, (Figure 3))

Discussion

The NST is the first step to evaluate fetal healthiness. 1% has been considered as a pseudo-negative measure in which fetal fatality occurs during a following weeks in conducting the reactive NST [14]. In order to demonstrate a fetal distress, a profile biophysical test is usually conducted after the non-reactive NST; in our study, nonetheless, it had not been directed on the instances and they just labored following a non reactive NST due to a complain of pain or decreased fetal movement. Moreover, 33.1% led to a fetal distress (tachycardia or bradycardia), and 86.4% delivered by the cesarean section; whereas, Lohana et al. [14] reported that 46.66% did by the cesarean section and in 8.33% a fetal distress was there as one of cesarean. Verma and Shrimali [15] and Eden et al. [16], however, assigned 63.15% and 37.7% to the fetal distress.

The meconium staining of liquor has variously been announced in publications. Schifrin et al. [17] and Patil and Gharegrat [18] recorded 39.1% and 34%; whereas Bano et al. [19] and Lohana et al. [14] reported 42.8% and 33.3%, respectively. 10% in the present study might be related to a more immediate intervention, cesarean and time wasting to perform complementary tests. In as much as this phenomenon could lead to the meconium aspiration syndrome, the number of 10% could be considered significant. First minute/below seven Apgar was registered as 4.2% where as this type of number were done as 6% and 53.3% in Verma and Shrimali [15] and Lohana et al. [14], respectively. Fifth minute/below seven Apgar in the present research is 0.9%; the numbers of Lohana et al. [14] and Bano et al. [19] were, respectively, 60% and 42.8%. Result data showed that hospitalization of the infants at the NICU is 5.3%, where as it is 28.5% in Bano et al. [19]. The sample sizes in Lohana et al. [14] and Bano [19] were 15 and 12, respectively; whereas it is 323 in the present study. This difference might be responsible for the egregious differences of statistical data.

References

- Hoh JK, Park MI, Park YS, Koh SK (2012) The significance of amplitude and duration of fetal heart rate acceleration in non-stress test analysis. *Taiwan J Obstet Gynecol* 51(3): 397-401.
- Lawrence D, Devoe MD (2008) Antenatal Fetal Assessment: Contraction Stress Test, Non stress Test, Vibro acoustic Stimulation, Amniotic Fluid Volume, Biophysical Profile, and Modified Biophysical Profile-An Overview. *Semin Perinatol* 32(4): 247-252.
- Nathan EB, Haberman S, Burgess T, Minkoff H (2000) The relationship of maternal position to the results of brief non stress tests: A randomized clinical trial. *Am J Obstet Gynecol* 182(5): 1070-1072.
- Wu ET, Lin TH, Lin CH, Lee CN (2014) Left ventricular assist device for stress-induced cardiomyopathy after postpartum hemorrhage. *Taiwan J Obstet Gynecol* 53(3): 429-431.
- Huang YF, Chen WC, Tseng JJ, Ho ESC, Chou MM (2012) FetalIntracranialHemorrhage(FetalStroke): Report of Four Antenatally Diagnosed Cases and Review of the Literature. *Taiwan J Obstet Gynecol* 2006; 45(2): 135-141.
- Maeda K, Utsu M, Makio A, Serizawa M (1998) Neural network computer analysis of fetal heart rate. *J Matern Fetal Investig* 8(4): 163-171.
- Shaw SW, Chen CP, Cheng PJ (2013) From Down syndrome screening to non invasive prenatal testing: 20 years' experience in Taiwan. *Taiwan J Obstet Gynecol* 52(4): 470-474.
- Todros T, Preve CU, Plazzotta C, Bioleati M, Lombardo P (1996) Fetal heart rate tracings: observer versus computer assessment. *Eur J Obstet Gynecol Reprod Biol* 68(1-2): 83-86.
- Bracero LA, Morgan S, Byrne DW (1999) Comparison of visual and computerized interpretation of non stress test results in a randomized controlled trial. *Am J Obstet Gynecol* 181(5): 1254-1258.
- Spencer JA (1990) Modern antenatal care of the fetus. Blackwell Scientific Publications, pp. 163-188.
- Tongprasert F, Jinpala S, Srisupandit K, Tongsong T (2006) The rapid biophysical profile for early intrapartum fetal well-being assessment. *Int J Gynecol Obstet* 95(1): 14-17.
- Kashanian M, Javadi F, Haghighi MM (2010) Effect of continuous support during labor on duration of labor and rate o cesarean delivery. *Int J Gynecol Obstet* 109(1): 198-200.
- Tsai HF, Cheng YC, Ko HC, Kang L, Tsai PY, et al. (2013) Prenatal diagnosis of fetal gastroschis is using three-dimensional ultrasound: Comparison between the 20th and 21st centuries. *Taiwan J Obstet Gynecol* 52(2): 192-196.
- Lohana RU, Khatri M, Hariharan C (2013) Correlation of non stress test with fetal outcome in term pregnancy (37-42 Weeks). *Int J Reprod Contracept Obstet Gynecol* 2(4): 639-645.
- Verma A, Shrimali L (2012) Impact of admission non stress test as a screening procedure on perinatal outcome. *IJMPS* 3(5): 06-10.
- Eden RD, Siefert LS, Koack LD, Trofatter KF, Killam AP, et al. (1988) A modified biophysical profile for antetal fetal surveillance. *Obstet Gynecol* 71: 365-339.
- Schifrin BS, Foye G, AmatoJ, Kates R, Mac Kenna J (1979) Routine fetal heart rate monitoring in the antepartum period. *J Obstet Gynecol* 54(1): 21-25.
- Patil SK, Gharegrat RH (1993) Correlation of NST and amniotic fluid volume in antenatal fetal monitoring. *J Obstet Gynecol India* 43: 178.
- Bano I, Noor N, Motwani L, Arshad Z (2012) Comparative study of Non stress Test and Fetal Acoustic Stimulation of Assessment of Fetal Wellbeing. *Int Sci J Jaypee* 3(2): 168-171.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/APBIJ.2017.02.555583](https://doi.org/10.19080/APBIJ.2017.02.555583)

Your next submission with Juniper Publishers

will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>