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Research Article

OUTCOME OF FETAL PARAMETERS IN LEFT LATERAL POSITION DURING NON STRESS TEST

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ABSTRACT

The Non Stress Test (NST) is a noninvasive checking of baby's heartbeat and movements. The NST convinces whether the baby is getting adequate oxygenation. The present study titled "Outcome of Fetal Parameters In Left Lateral Position During Non Stress Test" was aimed to identify the selected fetal parameters during Non Stress Test in Left Lateral Position and to ascertain the comfort of Antenatal mothers in Left Lateral Position during the Non Stress Test. A descriptive design with a convenient sampling of 100 samples were placed in left lateral position during Non Stress Test. Antenatal mothers who fulfill the sample inclusion criteria were selected for the study. The demographic variables and clinical data / maternal baseline characteristics were collected by interview of mothers and from medical records. The fetal parameters were assessed by observation and recording of biophysiological measurements from Non Stress Test tracing and Comfort of maternal positions were assessed by Verbal Numerical Rating Scale. The result reveals that 32% of prenatal women shows a baseline FHR of 140-149 BPM and 84% with a beat to beat variability of 5- 15 beats per minute. There was 3 to 4 acceleration in 78% of subjects and only 35% shows more than one deceleration. Majority (89%) perceived 2 to 4 fetal movements during NST. Among the sample, 44% of prenatal women verbalized they were very comfortable in left lateral position and 30% verbalized full comfort during NST procedure. The study concludes that left lateral position provides good reactivity during NST and mothers expressed left lateral position as a comfortable position for the procedure.

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INTRODUCTION

The antenatal care is a systematic examination of the woman and developing fetus from the time of conception until labor. Customary antenatal checkups could achieve the primary goal of obstetrics, to curtail the perinatal mortality and morbidity. The ultimate aim of antenatal care is the delivery of a healthy baby from a healthy mother. The technological advancements helps in the early diagnosis and treatment of fetal abnormalities in utero fetal evaluation. During antepartum period, several routine investigations are performed to monitor maternal fetal well-being. Antenatal assessment for the fetal well-being is of highest significance, to ensure the health and well-being of a developing fetus throughout pregnancy. There are some modalities in obstetrics which could help in early identification and prompt management of high risk conditions. Prenatal investigations are carried out to analyze whether the baby is receiving enough oxygen and nourishment through placenta.

Fetal heart rate monitoring is an intrinsic part of fetal monitoring. Antepartum electronic fetal heart rate monitoring is one of the commonly used methods for the evaluation of fetal oxygenation. This contributes significantly to early detection of fetal hypoxia, and thus helps to prevent fetal mortality and results in healthier fetomaternal outcomes. Non-stress test is used as a primary choice for fetal health and survival assessment. NST showing fetal heart rate acceleration during each fetal movement is an indicative of healthy fetus. This test is considered to be a valuable procedure for the assessment of fetal viability. The basic components of cardiotocograph of Non Stress Test are the baseline fetal heart rate (FHR), the beat to beat variability, acceleration, deceleration and fetal movements. The non-stress test is interpreted as normal reactive if the fetal heart rate increases at least 15 beats per minute over the baseline heart rate, lasting for at least 15 seconds, within a 20 minute period. The test is non reactive if there are no acceleration. A nonreactive NST shows no fetal movement, acceleration of the FHR with fetal movement, poor

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to no long term variability with anormal or abnormal baseline FHR. A non reactive fetal status needs management. The management measures includes lateral positioning, oxygen administration, reverting the maternal hypotension, stoppage of oxytocin, correction of dehydration, tocolytics, prevent sustained pushing in the second stage of labor and amnioinfusion. If all these measures fail, Cesarean section is the choice for management. Hence, NST interpreted as reactive is an indicative of healthy fetus and a non reactive NST calls for further evaluation to avoid the risk for further complications. In pregnancy, Left lateral position is used as a possible alternative to relieve the pressure on the vena cava and the right iliac artery exerted by the gravid uterus. There will be increase in the venous return and the cardiac output. This facilitates the placental perfusion.

Faulty positions can result in false positive results of Non Stress Test. It can lead to placental insufficiency and ultimately dyspnea or postural hypotension in the mother. So, it would be ideal to place the woman in left lateral position during a Non Stress Test. The healthy fetus in the uterus shows an increased reactivity. Also the mother will perceive greater comfort as she is relieved from all the discomforts associated with the vena caval compression. A dearth of knowledge about the influence of a particular position during pregnancy can lead to larger complicacy in the pregnant woman. Nurses play a pivotal role in educating the prenatal mother regarding the indications and advantages of particular position thereby preventing the fetal distress.

Objectives

1. To identify the selected fetal parameters during Non Stress Test in Left Lateral Position.
2. To ascertain the comfort of Antenatal mothers in Left Lateral Position during the Non Stress Test.

MATERIALS AND METHODS

The present study used a Quantitative approach with a descriptive design. The study was conducted at Antenatal Clinics of selected hospitals. The dependent variables of the study are fetal parameters in Non Stress Test and the comfort of Antenatal mothers. Independent variable involved is Left Lateral Position. The demographic variables are age, religion, education, occupation, type of family and family income of Antenatal mothers. The clinical variables / baseline maternal characteristics are Gestational age in weeks, Obstetrical score-GPAL, complications in the present pregnancy and the Antenatal mothers on medication and diet control. A total of 100 Antenatal mothers beyond 34 weeks with relaxed non irritate uterus are included in the study. The Antenatal mothers with uncontrolled Pregnancy Induced Hypertension, known cases of Hydramnios, Multiple gestation and Intrauterine Growth Restriction was excluded from the study. Probability sampling with convenient sampling technique is used. The tool consisted of Structured questionnaires which consisted of Demographic Variables, Clinical data / Baseline maternal characteristics, Non Stress Test Tracing and Verbal Numerical Rating scale for comfort. The fetal parameters assessed in Non Stress Test tracing includes Baseline fetal heart rate, Beat to beat variability, Number of accelerations, Number of deceleratons, and Number of fetal movements. Techniques during data collection are left lateral positioning, interview

technique, recording from clients medical records, observation and record of bio physiological measures. The reliability of the items in fetal parameters of Non Stress Test is $r = 0.8$ and for comfort scale the reliability is 0.85. The NST tracing was obtained and comfort assessment was done during a 20 minutes procedure.

Data Analysis

The collected information was condensed and explicated based on the research objectives using descriptive statistics.

- To document the demographic variables, clinical variables / baseline maternal characteristics of Antenatal Mothers in Left lateral position, descriptive analysis (frequency and percentage) are used.
- To find out the comfort level of Antenatal mothers in Left lateral position descriptive statistics is used.

RESULTS

Section I A Distribution of Antenatal mothers according to their demographic variables in left lateral position (n=100)

S.No	Demographic Variables	Category	Frequency(F)	Percentage(%)
1	Age in years	21-25	28	28
		26-30	54	54
		31-35	13	13
		>35	5	5
2	Religion	Hindu	40	40
		Christian	52	52
		Muslim	8	8
		Higher	6	6
3	Education	Secondary	17	17
		Diploma	69	69
		Graduate	8	8
		PostGraduate	8	8
4	Occupation	Housewife	27	27
		Teacher	18	18
		Staff Nurse	25	25
		Self employed	14	14
5	Family	Others	16	16
		Joint	30	30
		Nuclear	70	70

Table 1 represents that 54% of Antenatal mothers belongs to the age group of 26-30years, 52% were christian, 69% of mothers were graduate, 27% of mothers were house wife and 70% belongs to nuclear family.

Table 2 shows the frequency and percentage distribution of baseline characteristics/ clinical data of antenatal mothers in left lateral position

S.No	Baseline characteristics/clinical data	Category	Frequency F	Percentage %
1	Gestational age in weeks	34+	14	14
		35+	16	16
		36+	20	20
		37+	18	18
		38+	22	22
		39+	10	10
2	Obstetrical score GPAL G-Gravida	G ₁	46	46
		G ₂	34	34
		G ₃	16	16
		G ₄	4	4
		P-Parity	P ₀	46
P ₁	32		32	
P ₂	15		15	
P ₃	4		4	

	A ₁	3	3
A-Abortion	L ₀	46	46
	L ₁	32	32
	L ₂	15	15
L-Live	L ₃	4	4
Complications in the present pregnancy I st trimester	Threatened Abortion	3	3
4	PIH	8	8
	GDM	6	6
II nd trimester	PIH	8	8
	GDM	10	10
III rd trimester	IUGR	2	2

Table 2 shows 22% of women were in the gestational age of 38+ weeks, 46% of women were in their first pregnancy, 46% were not yet delivered, 3% had abortion and 32% had one live children. Only 8% had PIH, 10% had GDM and 2% had IUGR in the IIIrd trimester.

Objective I: To identify the selected fetal parameters during Non Stress Test in Left Lateral Position.

Table 3 depicts the frequency and percentage of fetal parameters on supine position

S.No	Fetal Parameters	Category	Frequency (F)	Percentage (%)
1	Baseline FHR	110-119	6	6
		120-129	12	12
		130-139	30	30
		140-149	32	32
		150-159	20	20
2	Beat to beat variability	<5	6	6
		5-15	84	84
		15-25	10	10
3	Number of Accelerations	1-2	8	8
		3-4	78	78
		5-6	14	14
4	Number of Decelerations	Absent	5	5
		One	60	60
		More than one	35	35
5	Number of fetal movements	Absent		
		<2 movement	1	1
		s	10	10
		2-4 movements	89	89

Table 3 reveals that during Non Stress Test 32% of mothers showed a Baseline FHR of 140-149bpm and 84% had a Beat to beat variability of 5-15bpm. Almost 78% of mothers showed 3-4 fetal acceleration and 60% Non Stress Test showed only one deceleration. Among the antenatal mothers 89% perceived 2-4 fetal movements.

Objective :2 To ascertain the comfort of Antenatal mothers in Left Lateral Position during the Non Stress Test.

Table 4 represents the comfort level of antenatal mothers in Left Lateral Position based on Verbal Numerical Rating Scale.

SI No	Comfort level	Frequency (f)	Percentage (%)
1.	0- Lack of comfort and need for help	0	0
2.	2- discomfort	1	1
3.	4- mild discomfort	5	5
4.	6- good feeling	20	20
5.	8- very comfortable	44	44
6.	10- full comfort	30	30

Table 4 shows 44% of mothers were very comfortable in left lateral position and 30% felt full comfort during NST.

DISCUSSION

Antenatal assessment is done to ensure the health and well-being of a developing fetus throughout pregnancy. The study was focused on assessing the fetal parameters (fetal heart rate, Beat to beat variability, acceleration, deceleration and fetal movements) and comfort level of mothers during non stress test in left lateral position. The sample selected antenatal women completed 34 weeks of gestation and who accomplish the inclusion criteria. The result reveals that 32% of prenatal women shows a baseline FHR of 140-149 BPM and 84% with a beat to beat variability of 5-15 beats per minute. There was 3 to 4 acceleration in 78% of subjects and only 35% shows more than one deceleration. Majority (89%) perceived 2 to 4 fetal movements during NST. Among the sample 44% of prenatal women verbalized they were very comfortable in left lateral position and 30% verbalized full comfort during NST procedure.

Abitbol MM, Monheit AG, et.al (2008), conducted a study to determine antepartum evaluation of 225 low-risk primipara and 262 high-risk primipara and multipara using non stress test. In that 53 patients were nonreactive when the test was performed in the supine position. When the test was repeated in the lateral decubitus position, it became reactive non stress testing in 21 of these patients. This group of patients with a supine nonreactive non stress test and a lateral reactive non stress test demonstrated an associated compression of the abdominal aorta by the pregnant uterus in the supine, but not the lateral position. This study distinguishes three types of nonreactive non stress tests: those due to placental insufficiency, those resulting from compression of the abdominal aorta by the pregnant uterus, and the falsely nonreactive. The percentage of false nonreactive non stress tests results will be reduced by performing the test in the lateral decubitus position. Comparing with the above study the present study proves left lateral position as a favourable position for obtaining NST.

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