



THE ROLE OF USG IN PRE-NATAL DIAGNOSIS: A RANDOMISED CONTROLLED STUDY

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**ABSTRACT**

Indian population is crossing 1.25 billion. A lot of births are taking place in the tertiary care hospitals. As the years are passing by, more and more people are getting educated and so is the health care sector. More people than ever before are turning for pre-natal counselling and also they understand the environmental contributions towards teratogenicity. More people are actively participating in the pre-natal check-ups and eagerly waiting to know the foetal health. the present study puts in a sincere effort to find the most common USG markers that is helpful in the prenatal Diagnosis.

**KEYWORDS :** USG, Pre-natal Diagnosis, Randomised, Controlled, Study.

**INTRODUCTION:**

Indian population is crossing 1.25 billion. A lot of births are taking place in the tertiary care hospitals. Most studies have reported 2% to 3% of living newborns have a congenital malformation.<sup>1,2</sup> Congenital Malformation is one of the most important causes of the foetal mortality.<sup>3</sup> Majority of the malformations have no underlying causes or rather poorly understood. The teratogenicity caused by environmental and drugs contributes for most of it<sup>4</sup>. Environmental causes include infections, degradation of the nature and its products, toxic fumes from automobiles and factories. The infections are also considered teratogenic especially maternal infections during pregnancy.<sup>5</sup>

As the years are passing by, more and more people are getting educated and so is the health care sector. More people than ever before are turning for pre-natal counselling and also they understand the environmental contributions towards teratogenicity. More people are actively participating in the pre-natal check-ups and eagerly waiting to know the foetal health<sup>6-8</sup>.

USG has formed a revolution in itself. It is the most popular tool to identify or screen the foetus. Many points can be marked with the help of USG which helps in the pre-natal diagnosis of diseases. The present study puts in an effort to find the most common USG markers that is helpful in the prenatal Diagnosis.

**AIMS AND OBJECTIVES:**

USG markers that help in the identification of pre-natal diagnosis.

**MATERIALS AND METHODS:**

This study was done in the Department of Radiology at Great Eastern Medical School and Hospital.

The study was conducted in 180 patients from August to November 2017

**INCLUSION CRITERIA:**

- 1. The age of the patients should be within 21 and 28 years.

**EXCLUSION CRITERIA:**

- 1. Any previous congenital anomalies. This was done to prevent known bias.
- 2. Known Intra-Uterine foetal death

The patients were routinely scanned in the first trimester and then in the second trimester.

**In the first trimester**

- the Fetal nuchal translucency,
- the Nasal Bone,

- Doppler sonographic evaluation of ductus venosus blood flow and abnormal tricuspid regurgitation were checked.
- Enlarged nuchal translucency was noted.

**In the Second trimester**

- nuchal fold thickening,
- echogenic intracardiac focus,
- shortened long bones,
- hyperechoic bowel,
- renal pyelectasis,
- choroid plexus cysts (CPCS),
- clinodactyly, and
- hypoplastic or absent nasal bone were noted.

Patients who were suspected were made to undergo CVS, Triple marker test and amniocentesis and then if positive appropriate measures were taken.

**RESULTS:**

**Table 1: Mean age of the Patients**

Age of the patient	Range	Std Deviation
32.82	21-38	6.12

**Table 2: Age Distribution:**

Years	Number of Patients
21-30	90
31-38	90

**Table 3: Incidence of positivity**

Years	Number of Patients	Percentage of positive signs
21-30	90	12
31-38	90	20

**Table 1: First trimester Scan (<2mm Nuchal Translucency)**

Total	Mean	Standard Deviation
19	1.27	0.71

**Table 2: >2 mm Nuchal Translucency (NT)**

Total	Mean	Standard Deviation
13	2.67	0.12
Nuchal Translucency with other abnormalities found on USG	X Value	P-Value
13	0.453	0.019

**Table 3: The Nasal Bone (N), Doppler sonographic evaluation of ductus venosus blood flow (I) and abnormal tricuspid regurgitation\*:**

Total	Nasal Bone not developed	Ductus Venosus Inverse Flow	Abnormal tricuspid regurgitation
07	04	02	01

**Table5: Echogenic Intracardiac Focus:**

Total	Positive	Negative
180	16	164

**DISCUSSION:**

In this study the mean age of the population was found to be 32.82 years. The range of the age of the sample size was taken from 21 years to 38 years. The standard deviation was found to be 6.12 years. Ninety patients were selected from the age group 21-30 years and ninety patients were selected from the age group 31 to 38 years. Incidence of positivity was to be more from the second group needlessness to understand the fact that the teratogenicity or foetal abnormalities increases with the age of the mothers. Nuchal translucency was found to be significantly higher in cases. The other abnormalities that was identified was The Nasal Bone, Doppler sonographic evaluation of ductus venosus blood flow and abnormal tricuspid regurgitation. The ecogenic intra cardiac focus was identified in sixteen cases.

Environmental causes include infections, degradation of the nature and its products, toxic fumes from automobiles and factories. The infections are also considered teratogenic especially maternal infections during pregnancy.<sup>5</sup> As the years are passing by, more and more people are getting educated and so is the health care sector. More people than ever before are turning for pre-natal counselling and also they understand the environmental contributions towards teratogenicity. More people are actively participating in the pre-natal check-ups and eagerly waiting to know the foetal health<sup>6-8</sup>. USG has formed a revolution in itself. It is the most popular tool to identify or screen the foetus. Many points can be marked with the help of USG which helps in the pre-natal diagnosis of diseases.

It should be understood that all the pregnancies are risky especially in elderly primi-gravidas. The amount of non-disjunctions that can be appreciated in them is quiet high. As a matter this was debated in a number of cases-studies and researches. It is also known that our constant changing environment due to interferences which are manmade is constantly bringing out minute mutations at a genetic level. Soft tissue markers are increasingly found in the tertiary care. It should be understood that getting a soft tissue marker does not mean that the foetus should have an abnormality but it should be further evaluated so that no catastrophes should occur.

**CONCLUSION:**

Even though the USG forms an excellent tool to screen foetal abnormalities, it is still in its infancies and the gold-standard test is still the other markers. So it has a lot of scope for development so as to be the gold standard for identifying the pre-natal diagnosis of foetal malformations.

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