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# Patterns of Myocardial Tissue Doppler in Intrauterine Growth Restriction

**Barnali Basu[1*] and Jaydeep Ghosh[2]**

*[*1] Marwari Hospital, Guwahati, Assam, India*

*[2]Apollo Hospital, Guwahati, Assam 781001, India.*

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## ABSTRACT

**Introduction:** One of the consequences of IUGR in fetuses is the development of cardiac diastolic dysfunction. Tissue Doppler in echocardiography is a new technique to detect myocardial tissue function and can act as a useful tool in the identification of this complication. We undertake this study to see the different inferences of this investigative tool in Intrauterine growth restriction. .

**Objectives:** The objective of the study was to carry out Myocardial tissue Doppler in fetuses with intrauterine growth restriction and observe the different inferences.

**Design:** It was a prospective case control study.

**Population:** Patients in the third trimester of pregnancy.

**Methods:** Fetal cardiac function was evaluated with the help of Myocardial Tissue Doppler in IUGR fetuses.

**Main Outcome measures:** Right and Left Ventricular and Interventricular septal E', A', E'/A' and Myocardial performance index (MPI').

**Results:** There were sixty two IUGR fetuses in the study. Comparison with fifty eight normal growth fetuses showed lower Right Ventricular late diastolic velocity (A') in the former in significant measure. Twenty seven among the IUGR fetuses also had abnormal vessel Doppler. They were found to have both significantly reduced Right Ventricular late diastolic velocity and MPI' than normal growth fetuses. The rest thirty five did not show any significant difference in their Myocardial tissue Doppler parameters.

Based on the birth weight of the IUGR fetuses on follow up, they were divided into mild, moderate and severe degree of IUGR. Twelve fetuses with severe IUGR were found to have significantly lower Right MPI' and left ventricular early diastolic velocity (E') than normal fetuses. Twenty eight fetuses with moderate IUGR had lower but statistically insignificant parameters while the rest twenty two mild IUGR fetuses showed lower left and right ventricular A'.

**Conclusion:** Myocardial tissue Doppler shows subtle cardiac dysfunction in IUGR babies in comparison to normal growth babies in the right ventricle particularly in babies with severe IUGR. Further research is needed to ascertain its utility in diagnosing cardiac dysfunction and perinatal complications in IUGR.

**Keywords:** Cardiac dysfunction, IUGR, Myocardial tissue doppler, Fetal echocardiography

**Corresponding author:** Dr. Barnali Basu, Registrar, Department of Obstetrics and Gynecology, Marwari Hospital, Guwahati, Assam 781001, India. E-mail: barneybas@hotmail.com

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