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## Early detection of fetal growth restrictions and its appropriate management

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### Abstract

The present study entitled “Early Detection of Fetal Growth restrictions and its Appropriate Management” is conducted in the Department of Obstetrics and Gynaecology.

DFMC has significant correlation with perinatal outcome. In patients with loss of fetal movements only 41.4% were healthy, 6% were morbid babies n mortality was increased upto 37.9% out of which 34.5% were IUD. Perinatal mortality significantly increased to 43.9% in patients with abnormal DFMC compared to that of 7% perinatal mortality in patients normal DFMC.

DFMC is an age old screening tool which needs minimum equipment, cost effective, easily affordable and being an inherent way of materno-fetal communication promotes high compliance, can be easily understandable to rural illiterate population, so it can be recommended as a part of routine fetal surveillance specially in high risk pregnancies like PIH and IUGR in developing countries like us. Thus Daily fetal movement count (DFMC) chart, a tool that is inexpensive, uncomplicated and non-invasive, can be a clinically effective means of screening for fetal well-being after 20 weeks gestation. But as DFMC has low specificity leading to false positive cases, is not reliable predictor for further antenatal fetal surveillance. These patients require reassessment with more technical tests of fetal wellbeing like AFI and color Doppler.

**Keywords:** Fetal, Restriction & Management

### Introduction

Fetal growth restriction (FGR) refers to a fetus that has failed to achieve its genetically determined growth potential and affects up to 5–10% of pregnancies. Fetal growth restriction is associated with an increase in perinatal mortality and morbidity. This is because of a high incidence of intrauterine fetal demise, intrapartum fetal morbidity, and operative deliveries. In preterm FGR, which occurs before 34 weeks gestation, iatrogenic prematurity is a pertinent issue. Neonates affected by FGR suffer from respiratory difficulties, polycythemia, hypoglycemia, intraventricular hemorrhage, and hypothermia<sup>[1]</sup>. In the long-term cerebral palsy, developmental delay and behavioral dysfunction can occur. Increasing evidence points to a link between FGR and adult metabolic syndrome<sup>[2]</sup>.

Late FGR is typically defined as that diagnosed >32 weeks of pregnancy. One study<sup>[3]</sup> showed that a cut-off of 32 weeks at diagnosis or 34 weeks at delivery maximized the clinical differences between early- & late-onset FGR, in terms of perinatal mortality (7.1% vs 0%; P <.001), adverse perinatal outcome (13.4% and 4.6%; P<.001), relationship with preeclampsia (35.1% vs 12.1%; P <.001).

### Material & Method

The present study entitled “Early Detection of Fetal Growth restrictions and its Appropriate Management” is conducted in the Department of Obstetrics and Gynaecology, Shri Aurobindo Institute of Medical Sciences and Post Graduate Institute, Indore (M.P.), in this study we have included 300 patients during the period from One Year. Each patient was told about her inclusion and participation in this study and her informed consent is taken.

### • Inclusion criteria

1. Antenatal women above 28 wks of gestation period attending Antenatal OPD.
2. Those with high risk factors and those with previous history of stillbirth.
3. Patients those who give consent.

### • Exclusion criteria

1. Antenatal women below 28 weeks of gestation period attending Antenatal OPD.
2. Patients who have IUD at Presentation.
3. Multiple pregnancies, those on any kind of medications.
4. Patients those who do not give consent.

**Routine investigations:** -CBC, Blood Group, BT/CT will be sent, RFT, LFT.

**Special investigations:** - Ultrasonography (Amniotic fluid index), Color Doppler. Three indices are studied in each patient, DFMC in terms of normal, decreased and loss of fetal movements, AFI <5 categorized as oligohydramnios, AFI 5 – 24 categorized as adequate, AFI >24 categorized as polyhydramnios, Color Doppler in terms of normal and

abnormal Doppler flow in both MCA and UA.

In every case detail history will be taken & thorough examination (general, systemic and obstetrical) will be done. High risk factors assessed.

Statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean  $\pm$  SD (Min-Max) and results on categorical measurements are presented in Number (%).

Significance is assessed at 5% level of significance. Chi-square test has been used to find the significance of study parameters. The Statistical software SPSS 20.0 version has been used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

### Results

**Table 1:** Distribution of Perinatal Outcome as per DFMC

DFMC	Alive Healthy	Nursery	IUD	Certified	Total
Normal	54(76%)	12(16.9%)	0	5(7%)	71
Decreased	141 (70.5%)	47(23.5)	7(3.5%)	5(2.5%)	200
Loss of fetal movements	12(41.4%)	6(20.7%)	10(34.5%)	1(3.4)	29
Total	207	65	17	11	300
P-value 0.00 (<0.05 significant at 95% confidence intervals)					

- The table shows DFMC has significant correlation with perinatal outcome.
- In patients with loss of fetal movements only 41.4% were healthy, 6% were morbid babies n mortality was increased upto 37.9% out of which 34.5% were IUD.
- Perinatal mortality significantly increased to 43.9% in patients with abnormal DFMC compared to that of 7% perinatal mortality in patients normal DFMC.

**Table 2:** DFMC

DFMC	SGA	AGA	Total
Abnormal	93(69.4%)	119(80%)	212
Normal	41(30.5%)	29(20%)	70
Total	134	148	282

P Value 0.00 which is significant (p value <0.05 at 95% confidence intervals) (excluding 1 LGA and 17 IUD) DFMC as a predictor seen have 69.4% sensitivity with only 20% specificity.

It suspects 80% of AGA fetus as false positive cases thereby over diagnosing the condition and leading to premature delivery of fetus.

### Discussion

Tveit *et al.*, 2009 [4] defined benefit in assessment of complaints of reduced fetal movements by increased identification of small-for-gestational-age (SGA) fetuses, either by symphysial fundal height measurement, ultrasound or both. Use of this simple method can reduce unnecessary ultrasound scans and may also prevent stillbirth where it is used alongside customised fetal growth charts (Francis, 2013) [5].

Johnson P *et al.* in 1994 [6] found that although abnormal uterine artery Doppler is associated with an increased risk of pre-eclampsia and fetal growth retardation, the positive predictive values do not support its introduction as a routine screening procedure.

In those with loss of fetal movements only 41.3% were healthy, and mortality was increased upto 44.7% out of which 34.5% were still born. As per (Efkarpidis, Alexopoulos, Kean, Liu, & Fay, 2004 [7] half of stillbirth cases the woman reports a history of decreased fetal movements prior to diagnosis.). Warrander & Heazell, 2011 [8] hypothesised that decreased fetal movements

might be a compensatory measure to reduce energy expenditure in the context of placental insufficiency.

### Conclusion

DFMC is an age old screening tool which needs minimum equipment, cost effective, easily affordable and being an inherent way of materno-fetal communication promotes high compliance, can be easily understandable to rural illiterate population, so it can be recommended as a part of routine fetal surveillance specially in high risk pregnancies like PIH and IUGR in developing countries like us. Thus Daily fetal movement count (DFMC) chart, a tool that is inexpensive, uncomplicated and non-invasive, can be a clinically effective means of screening for fetal well-being after 20 weeks gestation. But as DFMC has low specificity leading to false positive cases, is not reliable predictor for further antenatal fetal surveillance. These patients require reassessment with more technical tests of fetal wellbeing like AFI and color Doppler.

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