



Lactic Dehydrogenase, a biochemical marker to predict foetal outcome in pregnancies complicated by Intrauterine Growth Restriction



AMRIT GUPTA ¹, S P JAISWAR ², JYOTI ARORA ³ SWASTI TIWARI ⁴

1. DEPARTMENT OF MATERNAL AND REPRODUCTIVE HEALTH; 3. DEPTT. OF MOLECULAR MEDICINE, SGPGMS; 2. DEPARTMENT OF Obstetrics & Gynecology, KGMU, LUCKNOW, UTTAR PRADESH, INDIA

Introduction

Lactate Dehydrogenase catalyses the reversible oxidation of lactate to pyruvate at final steps of glycolytic pathway and is a marker of acute inflammation in body fluids

Am J Obstet Gynecol 1999;23:499-506

Objectives

- To analyze Lactic acid dehydrogenase as a predictor of IUGR;
- To analyze the diagnostic efficiency of LDH levels in prediction of etiology of IUGR;
- To study the diagnostic efficiency of LDH levels with fetal outcome in IUGR infants;

Methodology

- Study Type:** Prospective analytical case control study
- Study period:** From Jun 2008 to March 2014
- Place of study:** Department of Maternal and Reproductive health SGPGMS, & Department of Obstetrics and Gynaecology, KGMU, Lucknow, U.P. India

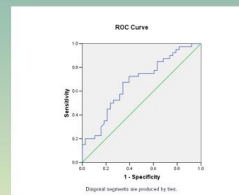
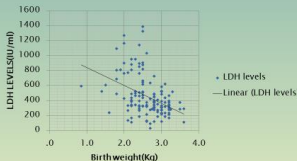
- Inclusion criteria**
- Pregnant mothers at third trimester were grouped under 2 categories
- Those with normal fetal growth parameters
- Those with restricted fetal growth
- Exclusion criteria**
- Pregnant mothers with S/S of preeclampsia
- Pregnant mothers with possible genetic cause

Selection

Study Protocol

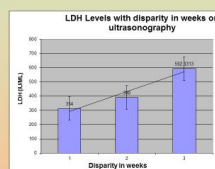
- 200 pregnant women were recruited and matched for age parity, and their demographic features, in their third trimester of pregnancy.
- Their serum samples were analysed for LDH levels
- Statistical analysis was done using chi sq. test, students t-test and Fishers test. Cut of values were found using regression curve for good sensitivity and specificity.

Birth weight vs LDH levels



Observations

- Maternal serum LDH levels are significantly raised in the study group
- Increased levels are associated with increasing severity of the condition
- Fetal morbidity is increased with increase in levels of serum LDH



	Control group	Study group	Fisher's	T - test
Mean LDH levels (IU/ml)	310.096	572.618	3.42E-13	7.86E-11
Mean Baby weight (kg)	2.97	2.32	0.00368	2.7E-28
Mean gestation at delivery (weeks)	38.16	37.16	5.943E-07	0.000649
Mean disparity on USG (weeks)	0.33	1.36	1.963E-05	4.72E-27

Variable	Sensitivity %	Specificity %	PPV %	NPV %
LDH >400IU/ml	65	83	89	67

PPV- Positive predictive value; NPV- Negative Predictive value
LDH- Lactic Dehydrogenase



REFERENCES

- Fetal lactic acid dehydrogenase variation I normal pregnancy and in cases of severe intrauterine growth restriction. Verspyck E, Gaillard G, Parinet F, marret S, Marpeau L. Prenat Diagnosis 1999 Mar; 19(3):229-33.
- ACOG Practice Bulletin. Intrauterine growth restriction. Number 12, January 2000. Clinical management guidelines for obstetrician-gynecologists. Int J Gynaecol Obstet. 2001; 72:85-96.
- Novel biomarkers for predicting intrauterine growth restriction: a systematic review and meta-analysis; Conde-Agudelo, AT Papageorgiou, SH Kennedy, J Villar. BJOG: An International Journal of Obstetrics & Gynaecology Volume 120, Issue 6, 681-694

Conclusion

Pregnancy complicated by intrauterine growth restriction is a challenge for an obstetrician, as peri-natal outcome is largely dependent on antenatal events. Hence, markers for assessment of prognosis become a necessity in these conditions. LDH seems to be an important marker in such scenario