ADIPONECTIN LEVELS AS EARLY MARKER OF INSULIN RESISTANCE IN CHILDREN BORN SMALL FOR GESTATIONAL AGE IN OUR COHORT

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Introduction

- Adiponectins are crucial for fetal as well as early postnatal growth
- Recent studies have found Adiponectin and Leptin to have major role in altering insulin sensitivity
- India has huge burden of Low Birth Weight (LBW), incidence being 30%
- 70% of LBW are Small for Gestational Age (SGA)
- Approx 85% SGA achieve catch up growth (CUG) by 2 years
- So, Low Adiponectin can be used as a new surrogate marker for Insulin resistance, and adult metabolic diseases
- No Indian studies available

Aims and Objectives

Primary: To evaluate Adiponectin levels in term SGA at 15-18 months age
Secondary: To evaluate its relationship with postnatal catchup growth (CUG)

Materials and Methods

- Approval by institutional ethical committee taken
- Study group-60 term SGA children (birth weight < 10th percentile) at 15-18 months age
- Cross sectional observational study
- IEM, major anomaly and chronic illnesses were excluded
- Birth data recorded from discharge document
- Current anthropometry measured at inclusion
- Data analyzed for CUG as gain in weight/length SDS or both >0.67 SDS
- WHO growth charts taken as reference
- Informed consent taken and instructions given for overnight fasting
- Adiponectin levels measured using Avibion Human Adiponectin (Acrp30) Enzyme-Linked Immunosorbent Assay (ELISA) Kit

Results

- 65% (39/60) showed CUG
- 35% (21/60) had no catch up
- All 39 showed catch up in weight
- ONLY 20 (1/3 of total) had LCUG
- Adiponectin levels similar in CUG (8.7 ± 4.4 μg/ml) and NCUG (8.5 ± 3.4 μg/ml), p=0.94

Conclusion

- Approx 2/3 of our SGA(39/60) had shown CUG
- All 39 had shown WCUG but only 33% had catchup in length which is low as compared to 85% in western studies
- The altered ratio of low LCUG and high WCUG along with low birth weight is associated with extreme CVD risk in later life
- Adiponectin levels were low among both CUG and NCUG

Recommendations

- Further studies to establish baseline Adiponectin levels in Indian population
- Regular follow up of SGA in high risk clinic and recognition of CUG and weight gain
- Periodic evaluation of metabolic parameters
- Limitation of excessive weight gain in SGA by promoting breast feeding can be advocated as early lifestyle change

References

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