

We present a series of three cases of Vitamin D deficiency and its associated cardiovascular complications.

Case 1: This 6 month girl of African descent presented to the emergency department in cardiac failure. The echocardiogram showed grossly dilated heart with impaired function. On evaluation she was found to have vitamin D deficiency and responded well to calcium, vitamin D, diuretics and digoxin.

Case 2: This two year girl who had been treated for dilated cardiomyopathy secondary to vitamin D deficiency was brought to the emergency department in cardiac arrest. Her post-mortem examination revealed grossly dilated cardiomyopathy with extensive calcification of the conduction pathways.

Case 3: This 15 year old boy of African descent was being evaluated for genu valgum. His evaluation revealed hypocalcemia, vitamin D deficiency and a prolonged QT interval. Echocardiogram was unremarkable. He was started on Vitamin D and calcium. His QT interval normalised.

Conclusions: Dilated cardiomyopathy secondary to vitamin D deficiency can definitely be prevented and does have a better prognosis than idiopathic dilated cardiomyopathy. Although the risk of Vitamin D deficiency is greater in individuals with increased skin pigmentation, recently there has been a resurgence of vitamin D deficiency in the developed world, and this has become a global problem.

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NUTRITIONAL DEFICIT AMONG EXTREMELY LOW BIRTH WEIGHT INFANTS IS EVITABLE

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Postnatal malnutrition and growth retardation were shown as inevitable consequence of current recommendations in preterm infants.

In 2006, we modified our nutritional guideline:

-Intravenous protein and lipids started at higher rates and increased quicker.

-Human milk fortified with EOPROTINE 4% and LIQUIGENE 4 mL/d when enteral feeding reach 100 mL/kg.d

-Introduction of preterm formula fortified with EOPROTINE 2% for up to 50% of the volume fed if growth was insufficient.

Objectives: To compare energy and protein cumulative deficits over the first seven weeks of life.

Method: Optimal energy and protein intakes were set at 120Cal/kg.d and 3g/kg.d respectively and used to calculate positive cumulative deficits. We compared 2 groups of ELBW infants below 28 weeks born in 2005 and 2009 who stayed at least 7 weeks in our unit. Results are reported as median (Q1, Q3). Mann-Whitney tests were performed for each criteria.

Results: Groups were not different for GA (p=0.277) and BW (p=0.106). At the end of the 1st and the 7th week, energy and protein deficit were significantly reduced in the 2009 group.

Energy (Cal/kg): W1:419(378, 450) versus 375(327, 421), p=0.002; W7: 983(724, 1355) versus 48(-270, 484), p< 0.01

Protein (g/kg): W1: 5.77(5.06, 7.72) versus -0.19(-1.4, 0.65), p< 0.01 ; W7 : 1.14(-6.55, 6.68) versus -18.72(-27, -12.62), p< 0.01

Conclusion: Higher parenteral intakes and close attention to enteral feeding allowed a reduction of nutritional deficit. Nonetheless, potential clinical effect had to be studied.

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IMPROVED CATCH UP GROWTH IN MALE PRETERM AGA INFANTS WITH INCREASED EARLY PROTEIN AND MINERAL INTAKE

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Background: Optimal protein intake improves weight gain whereas sufficient intake of calcium (Ca) and Phosphate (P) is necessary for bone mineralization and gain in length.

Aims: Evaluation of long-term growth in relation to standard intake with low and higher amount of amino acids (AA), Ca, P.

Methods: consecutive cohort study (C1, C2) preterm infants with follow up until 24 months; standard parenteral intake: **C1:** max: 2.5g/kg/d AA, Ca/P: 1/0,26 mmol/kg/d **C2:** max: 3g/kg/d AA, Ca/P: 3/1,9 mmol/kg/d. Enteral feeding: not different, starting day 1; human milk fortification from 50ml/d on. Comparison between two cohorts: nutritional intake and growth during first five weeks, follow up at term corrected age (TCA), 6, 12 and 24 months. SDS for weight and length according to Dutch reference^{1,2}.

Results: **C1:** Male: n = 28, GA 29.3 ±2.3, BW 1272 ± 351g. Female n = 29 GA28.8± 1.7, BW 1129± 319 **C2:** Male: n = 35 GA 29.5±1.9, BW 1325±359, Female n= 30, GA 29.4±3.6, BW 1272±340

Mean SDS	Birth weight	TCA weight	6 m weight	12 m weight	24 m weight	TCA length	6 m length	12 m length	24 m length
C1Fem	0.11	-1.9	-0.5	-0.6	-0.5	-3.0	-0.5	-0.6	-0.5
C2Fem	0.15	-2.2	-0.8	-0.6	-0.5	-2.7	-0.3	-0.5	-0.5
C1Male	0.53	-1.5	-0.7	-0.6	-0.5	-2.6	-0.2	-0.2	-0.2
C2Male	0.36	-1.2	-0.4	-0.5	-0.4	-1.8	0.1	-0.1	0.0

[Table 1 SDS for weight and length]

Conclusions: AGA infants demonstrated main catch up at 6 months after TCA with complete recovery for length in C2male. Male infants take more advantage from improved feeding regimen.

1. Visser GHA Early Hum Dev 2009
2. Frederiks AM Ped Res 2000

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BODY COMPOSITION OF ADEQUATE AND SMALL FOR GESTATIONAL AGE NEWBORNS AND THE RELATIONSHIP WITH MATERNAL BODY COMPOSITION

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Introduction: Low birth weight and intrauterine growth restriction are associated to high morbidity and mortality. A compromised maternal nutritional status and placental failure could be responsible for intrauterine growth insufficiency.

Objective: To describe mothers' body composition of adequate for gestational age (AGA) and small for gestational age (SGA) newborn infants, and to correlate them with newborns' body composition.

Methods: 19 term AGA newborns and 18 term SGA newborn were studied. Anthropometric data was registered. The body composition of mothers and their respective babies was determined by deuterium dilution and analyzed by gas isotopic ratio mass spectrometry and bioelectrical impedance analysis (BIA).

Results: There was no difference in anthropometric characteristics and body composition between AGA and SGA mothers. There was a strong correlation between the two methods utilized for analysis of maternal body composition (deuterium vs BIA). Gestational age, gender distribution and Apgar score were similar between AGA and SGA babies. AGA newborns showed higher weight and length at birth and study period, as well as higher Rohrer index, cephalic, thoracic and braquial circumpherence, tricipital and subscapular skinfolds, compared to SGA newborns. There was a significant difference in body composition between AGA and SGA groups regarding fat mass (13,5% ± 4,80 AGA vs 7,01% ± 3,41 SGA) and total body water (74,4% ± 2,73 SGA vs. 68,3% ± 4,51 AGA). It was not found any significant correlation between maternal and newborn's body composition in both groups.

Conclusion: Intrauterine growth restriction is not related to maternal body composition in our university hospital.

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EATING, DRINKING AND SWALLOWING DISORDERS: A NEW REGIONAL CLINIC REVIEW

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Background: Eating, drinking and swallowing (EDS) disorders can have serious consequences for children which include dehydration, malnutrition, failure to thrive, aspiration pneumonia, choking and possibly death. Paediatric feeding disorders have been reported in up to 25% of children. This number increases to 80% in developmentally delayed children. Therefore disordered feeding should involve assessment by a multidisciplinary team.