

Metabolic Profile of Neonates With Different Duration of Gestation and Different Size at Birth

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Background: Controversial findings about the metabolic profile in newborns depending on the length of gestation and size at birth have been reported.

Objective and hypotheses: Insulinemia, adiponectin, and leptin levels are different in children born prematurely and SGA neonates compared to term normal newborns.

Method: 196 healthy newborns were studied at the age 3-4 days. Birth weight (BW), birth length (BL), BMI, ponderal index (PI), and BW/BL ratio were recorded at birth. Neonates were divided according to the length of gestation to term and preterm, and according to the size to: appropriate for gestational age (AGA), SGA, and large for gestational age (LGA). Samples of blood were taken on the third day after delivery. Glycemia, insulinemia, cortisol, leptin, and adiponectin were measured.

Results: Insulinemia and C-peptide were highest in the group of term female newborns. However, HOMA index was highest in the SGA group. Leptin levels in term neonates were 2.12 ± 1.02 ng/ml vs 1.24 ± 0.35 in preterm, and 1.71 ± 0.53 in SGA neonates ($P < 0.001$). Levels of adiponectin were significantly higher in the term group; 30.77 ± 22.64 ng/ml vs 13.40 ± 1.70 in SGA ($P < 0.05$) and 9.43 ± 4.82 in preterm neonates ($P < 0.001$). Cortisol levels were also significantly different 167.55 ± 75.56 nmol/l in terms versus 135.54 ± 61.12 in preterm (0.01), and 189.5 ± 64.7 ($P < 0.05$) in SGA neonates. SGA babies had higher leptin level ($P < 0.0002$) and adiponectin level ($P < 0.001$) compared to premature neonates.

Conclusion: The positive correlation between BW, BMI and PI and concentration of leptin and adiponectin is probably a result of increased production from the growing adipose tissue during the last trimester of pregnancy. Adipocytokines level depends on gestational age and ponderal index. Leptin and adiponectin levels are more likely to correlate with birth weight than with gestational age. Careful planning of nutrition of both premature and SGA neonates based on their metabolic profile might prevent obesity later in life.

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Background: Insulinemia and C-peptide were highest in the group of term female newborns. However, HOMA index was highest in the SGA group. Leptin levels in term neonates were 2.12 ± 1.02 ng/ml vs 1.24 ± 0.35 in preterm, and 1.71 ± 0.53 in SGA neonates ($P < 0.001$). Levels of adiponectin were significantly higher in the term group; 30.77 ± 22.64 ng/ml vs 13.40 ± 1.70 in SGA ($P < 0.05$) and 9.43 ± 4.82 in preterm neonates ($P < 0.001$). Cortisol levels were also significantly different 167.55 ± 75.56 nmol/l in terms versus 135.54 ± 61.12 in preterm (0.01), and 189.5 ± 64.7 ($P < 0.05$) in SGA neonates. SGA babies had higher leptin level ($P < 0.0002$) and adiponectin level ($P < 0.001$) compared to premature neonates. **Conclusion:** The positive correlation between BW, BMI and PI and concentration of leptin and adiponectin is probably a result of increased production from the growing adipose tissue during the last trimester of pregnancy. Adipocytokines level depends on gestational age and ponderal index. Leptin and adiponectin levels are more likely to correlate with birth weight than with gestational age. Careful planning of nutrition of both premature and SGA neonates based on their metabolic profile might prevent obesity later in life.

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A Couple of Naturally Conceived Twins Affected by Prader-Willi Syndrome

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Various Presentations of X-Linked Adrenoleukodystrophy: Case Reports

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Background: Adrenoleukodystrophy (ALD) is an X-linked disease characterized by impaired β -oxidation of very long-chain fatty acids (VLCFA) and is the most severe form by inflammatory complications in the brain, adrenocortical insufficiency (AI).