PROTEIN INTAKE FROM BIRTH TO TERM IN PRETERM INFANTS IS ASSOCIATED WITH INSULIN LEVELS, BUT NOT WITH IGF-1 LEVELS AT TERM

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Background and aims: Fetal growth is, among others, regulated by nutrient supply, insulin, and insulin-like growth factors. It has been suggested that, in preterms, growth until term is regulated identically and that IGF-1 is associated with early protein intake.

We hypothesized that protein intake, insulin, and IGF-1 are related with growth between birth and term in preterms.

Methods: In 139 preterms (51% male, gestational age 30.3 ± 1.5 wks., birth weight 1341 ± 288 g.), IGF-1 and insulin at term and anthropometry at birth and term were measured. Mean protein intake ($\text{g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$) birth-term was calculated.

Results: Protein intake birth-term was 2.8 ± 0.4 $\text{g} \cdot \text{kg}^{-1} \cdot \text{day}^{-1}$ (birth-34 wks. 2.2 ± 0.5 $\text{g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$ and 34 wks.-term 3.2 ± 0.6 $\text{g} \cdot \text{kg}^{-1} \cdot \text{d}^{-1}$). Size at birth was associated with insulin and IGF-1 at term (Table 1). Insulin was positively associated with IGF-1 ($\beta = 0.79$, $p = 0.000$). Protein intake was associated with insulin ($\beta = 0.40$, $p = 0.034$), but not with IGF-1 at term.

	IGF-1 (β)	Insulin (β)
Birth weight SDS	0.59**	0.25**
Birth length SDS	0.43*	0.15*
Birth HC SDS	0.27	0.11
Weight SDS at term	0.31**	0.28*
Length SDS at term	0.29**	0.37*
HC SDS at term	0.15**	0.13

[Table 1]

* $p < 0.05$, ** $p < 0.001$

Conclusions: In preterms, insulin and IGF-1 contribute to growth between birth and term.

The lack of association between protein intake and IGF-1 may be explained by insufficient protein intake from birth - 34 wks.