

Poster Topical Area: Maternal, Perinatal and Pediatric Nutrition

Location: Hall D

Poster Board Number: 257

E04-04 - Growth of healthy full-term infants fed with an infant formula containing different protein concentration and breast milk

 Sunday, Jun 10  8:00 AM – 6:00 PM

Objective:

The aim was to evaluate growth parameters in full term infants who received infant formula containing different protein concentrations compared with infants exclusively breastfed during the first 4 months of life.

Methods:

Healthy full-term infants (n=308) participated in a randomized, single blind, controlled trial. Of the 308 infants, a total of 96 were randomized to receive one of three infant formulas differing only in the amount of protein 1) Infants feed Low Protein Formula (IF-LP: 1.3g protein/dL) (n=18); 2) Infants feed a Very Low Protein Formula (IF-VLP: 1.0 g protein/dL) (n=16); and 3) Infants feed a Standard Protein Formula IF-SP: 1.5 protein/dL) (n=24). An additional group of Infants who received exclusively breastmilk (HM: 0.8-1.0 g protein/dL) (n=82). Weight, length and head circumference were evaluated at baseline, and every month for 4 months. Growth velocity included: weight gain (g/day), length (cm/month), and head circumference (cm/month), and was calculated considering rate of change from baseline to day 120. Weight-for-age z-score (WAZ), weight-for-length z-score (WLZ), length-for-age z-score (LAZ), head circumference-for-age z-score (HCAZ) and body mass index-for-age z-score (BMIAZ) were calculated with WHO 2006 Child Growth Standard and compared with HM group by analysis of variance (ANOVA and ANCOVA) adjusted by initial value.

Results:

A total of 140 infants completed the study (45.5%). Mean age at baseline was 19.7 ±12.1 days. There were no significant differences among groups in adjusted changes in weight, length and head circumference after 4 months (table 1). There were no differences among groups in WLZ, LAZ, HCAZ and BMIAZ after 4 months. WAZ in breastfeed group were similar to infant formulas with

different concentration of protein. Weight gain in breastfeed group and IF-VLP were similar and both were significantly lower than IF-LP and IF-CSP groups (table 2).

Conclusion:

In conclusion, no difference in growth was found among the groups feed different protein concentrations in infants feed with infant formulas during the first 4 months of life. An infant formula containing 1.0 g of protein per dL promotes weight gain and normal growth in full-term infants similar to exclusively breast feed infants.

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Table 1. Changes on weight, length and Head circumference and z-scores after 4 months.

	Feeding Group								P
	IF-LP n=18	95% CI	IF-VLP n=16	95% CI	IF-CSP n=24	95% CI	HM n=82	95% CI	
Weight (g)									
*change after 4 mo	2852.8	(2544.6 , 3160.9)	2700.4	(2380.7 , 3020.1)	3043.7	(2782.7 , 3304.8)	2840.0	(2697.9 , 2982.1)	0.4
Length (cm)									
*change after 4 mo	9.8	(8.9 , 10.7)	9.8	(8.9 , 10.7)	10.5	(9.8 , 11.3)	10.4	(10.0 , 10.8)	0.4
Head circumference									
*change after 4 mo	4.8	(4.4 , 5.3)	5.0	(4.5 , 5.4)	5.3	(4.9 , 5.6)	5.2	(5.0 , 5.4)	0.4
WAZ									
4 mo*	-0.07	(-0.44 , 0.30)	-0.66	a (-1.04 , -0.28)	-0.04	(-0.35 , 0.27)	-0.37	(-0.54 , -0.20)	0.049
WLZ									
4 mo*	1.15	(0.77 , 1.54)	0.70	(0.29 , 1.11)	1.02	(0.68 , 1.35)	0.73	(0.55 , 0.91)	0.139
LAZ									
4 mo*	-1.14	(-1.54 , -0.75)	-1.52	(-1.93 , -1.12)	-1.02	(-1.36 , -0.69)	-1.25	(-1.43 , -1.07)	0.302
BMIZ									
4 mo*	0.83	(0.46 , 1.19)	0.33	(-0.06 , 0.71)	0.75	(0.44 , 1.06)	0.45	(0.28 , 0.62)	0.107
HCZ									
4 mo*	-0.17	(-0.48 , 0.14)	-0.56	(-0.88 , -0.25)	-0.15	(-0.41 , 0.11)	-0.35	(-0.49 , -0.21)	0.184

m: months

a, significantly different from IF-LP (p = 0.031) and IF-CSP (p = 0.014) groups.

Table 2. Growth velocity by feeding group

Growth parameter	IF-LP n=19	IF-VLP n=17	IF-CSP n=24	HM n=81	P
Weight gain (g/day)	31.7 a (7.3)	26.1 b (5.1)	32.2 (8.3)	26.8 c (6.4)	0.001
Length gain (cm/mo)	2.6 (0.6)	2.4 (0.5)	2.7 (0.6)	2.5 (0.5)	0.683
Head circumference gain (cm/mo)	1.3 (0.4)	1.2 (0.2)	1.3 (0.3)	1.2 (0.3)	0.595

Abbreviation: IF-LP, Infant Formula with low protein; IF-VLP, Infant Formula wuth very low protein;HM, human milk.

Results are sowed in Means ± Standard Deviation

a, significantly different from IF-VLP (p=0.016)

b, significantly different from IF-CSP (p=0.006)

c, significantly different from IF-LP (p = 0.007) and IF-CSP (p = 0.001) groups.

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