

THE LIPID METABOLISM IN INFANTS FED FORMULA SUPPLEMENTED WITH BOVINE MILK FAT AND BOVINE MILK FAT GLOBULE MEMBRANES.

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OBJECTIVES AND STUDY

It is well known that the early nutrition has short- and long-term outcomes to the health of infants. The fat component of the most infant formulas consists of mixtures of vegetable oils. Formula-fed infants have lower intakes of several biologically active components present in human milk. Some of these are the milk fat globule membranes (MFGM). The aim of the present study was to examine the effects of feeding term infants an experimental formula («Semper Baby Nutraderfense 1», Hero Rus) supplemented with bovine milk fat (cream) and milk fat globule membranes. Our hypothesis was that infants fed experimental formula (EF), compared to infants fed standard formula (SF) would have lipid metabolism more similar to a breast-fed reference (BFR) group.

METHODS

In observational study 60 exclusively formula-fed, healthy, term infants were divided into 2 groups to receive EF or SF from <2 months of age. A BFR group consisted of 30 breast-fed infants. The EF was supplemented with cream and a bovine MFGM concentrate. The level of total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL) and triglycerides (TG) were measured in every infant. The measurements were made at baseline and after 2 months.

CONCLUSION

Our study showed the mean cholesterol and LDL concentration in infants fed formula supplemented with cream and a bovine MFGM concentrate were comparable to those of breastfed infants. This intervention can narrow the gap in serum cholesterol concentrations between formula-fed and breast-fed infants and may contribute to improved short- and long-term health outcomes for formula-fed infants.

Disclosure of interest:

This research was carried out with the support of Hero Rus company.

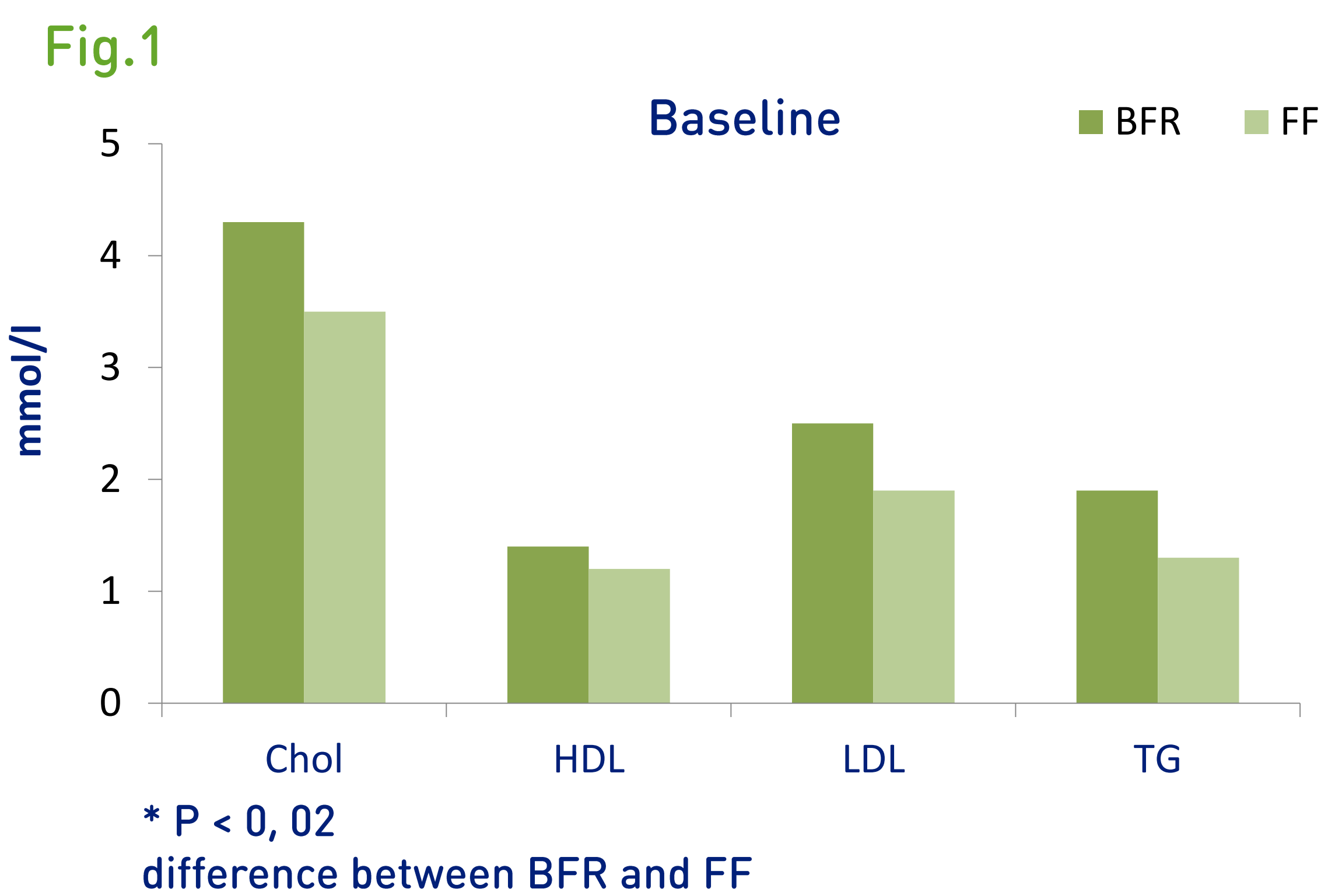
RESULTS

Basically, cholesterol, HDL, LDL and triglyceride levels were significantly higher in breast fed infants compared to formula fed (SF and EF groups). Fig.1

We identified the increase the level of cholesterol and LDL in EF group during the intervention.

But these indicators have not exceeded the reference values and were comparable to those of breastfed infants (tab 1).

After 2 months of intervention the mean total cholesterol concentration was significantly higher in the BFR group compared to the SF group and did not differ from EF group. The mean HDL and TG concentration did not differ significantly between the three groups. The mean LDL concentration was significantly higher in the BFR group compared to the SF group but at the same time this indicator did not differ significantly between the EF and BFR groups at the end of the investigation. (tab 2)



Lipid metabolism`s indicators of EF group (tab 1)

Indicators, mmol/L	Baseline	After 2 mo	p
Cholesterol	3,54 (3,11; 3,96)	3,84 (3,35; 4,63)	0,022
HDL	1,14 (0,94; 1,34)	1,16 (0,98; 1,49)	0,322
LDL	2,13 (1,52; 2,48)	2,61 (2,03; 3,24)	0,004
TG	1,11 (0,89; 2,04)	2,17 (1,19; 2,77)	0,077

Lipid metabolism`s indicators after 2 months of intervention (tab 2)

Indicators, mmol/L	The values of indicators, Me (25;75)			p*
	EF n= 25	SF n=27	BFR n=29	
Cholesterol	3,84 (3,35; 4,63)	3,78 (3,24; 3,98)	4,2 (3,74;4,75)	p ₁ =0,005 p ₂ =0,107 p ₃ =0,170
HDL	1,16 (0,97; 1,49)	1,15 (1,04; 1,31)	1,12 (1,07; 1,25)	p ₁ =0,907 p ₂ =0,792 p ₃ =0,928
LDL	2,61 (2,03; 3,24)	2,23 (1,93; 2,48)	2,92 (2,36; 3,64)	p ₁ =0,000 p ₂ =0,083 p ₃ =0,024
TG	2,17 (1,19; 2,77)	2,28 (1,69; 3,05)	1,88 (1,27; 2,7)	p ₁ =0,245 p ₂ =0,992 p ₃ =0,726

* p₁ - difference between BFR and SF
p₂ - difference between BFR and EF
p₃ - difference between EF and SF