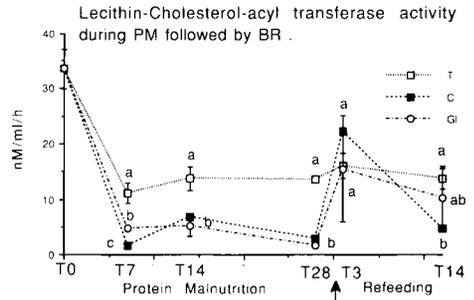


**Lecithin-cholesterol acyltransferase activity during two types of protein malnutrition followed by balanced refeeding in the growing rat.** MY Lamri <sup>1</sup>, A Boualga <sup>1</sup>, M Meghelli-Bouchenak <sup>1</sup>, J Belleville <sup>2</sup> (<sup>1</sup> Institut des Sciences de la Nature, Université d'Oran, Laboratoire de Physiologie Animale et de la Nutrition, Oran, Algeria; <sup>2</sup> Université de Bourgogne, Faculté des Sciences Mirande, Unité de Recherche de Nutrition Cellulaire et Métabolique, Dijon, France)

Our earlier studies (Meghelli-Bouchenak *et al*, 1987, 1989a,b) showed that protein origin and levels affected the degree of steatosis with depleted diets. Two percent casein promoted greater accumulation of triacylglycerols in the liver, whereas 5% gluten induced a greater increase in unesterified cholesterol and cholesteryl esters in the liver than the control diet. This was due to their impaired transport by VLDL from the liver to the peripheral tissues. Serum VLDL were markedly lowered due to a decline in the synthesis of VLDL apoproteins. On the other hand, the amounts and composition of HDL responsible for cholesterol transport from peripheral tissues to the liver were slightly modified.

The aim of this study was to determine whether lecithin-cholesterol-acyl-transferase activity (LCAT) was sensitive to protein origin and levels. The time course of changes in LCAT activity was studied in 2 types of protein malnutrition (PM) followed by balanced refeeding (BR) in the growing rat. A control group (15% casein) was used as reference. LCAT catalyzed the formation of cholesteryl ester by the transesterification of free cholesterol in serum HDL, the fatty acid donor being HDL<sub>3</sub>-lecithin, which in the process was converted to lysolecithin. LCAT, an enzyme synthesized in the liver, acted in the circulation through apo AI of HDL<sub>3</sub>. HDL<sub>3</sub> were converted to HDL<sub>2</sub>. LCAT activity was determined on fresh serum of rat at different times of PM and BR, by conversion of [<sup>3</sup>H]-cholesterol into [<sup>3</sup>H]-esterified cholesterol according to the method of Glomset *et al* (1964) modified by Knipping (1986).

In the T group (15% casein), a reduction in LACT activity with age was noted. The onset of



**Fig 1.** Each point represent the mean  $\pm$  SEM of 4 rats per group. T = (15% casein), C = (2% casein), Gl = (5% gluten). After analysis of variance, classification of the means was performed using Duncan's new multiple range test. Data were compared separately for each time. Means with different superscripts were significantly different ( $P < 0.05$ ).

both types of PM promoted the same significant decrease in LCAT activity ( $P < 0.05$ ). At d 3 of BR, a significant rise was observed, which was more marked in group C (2% casein) than in group Gl (5% gluten).

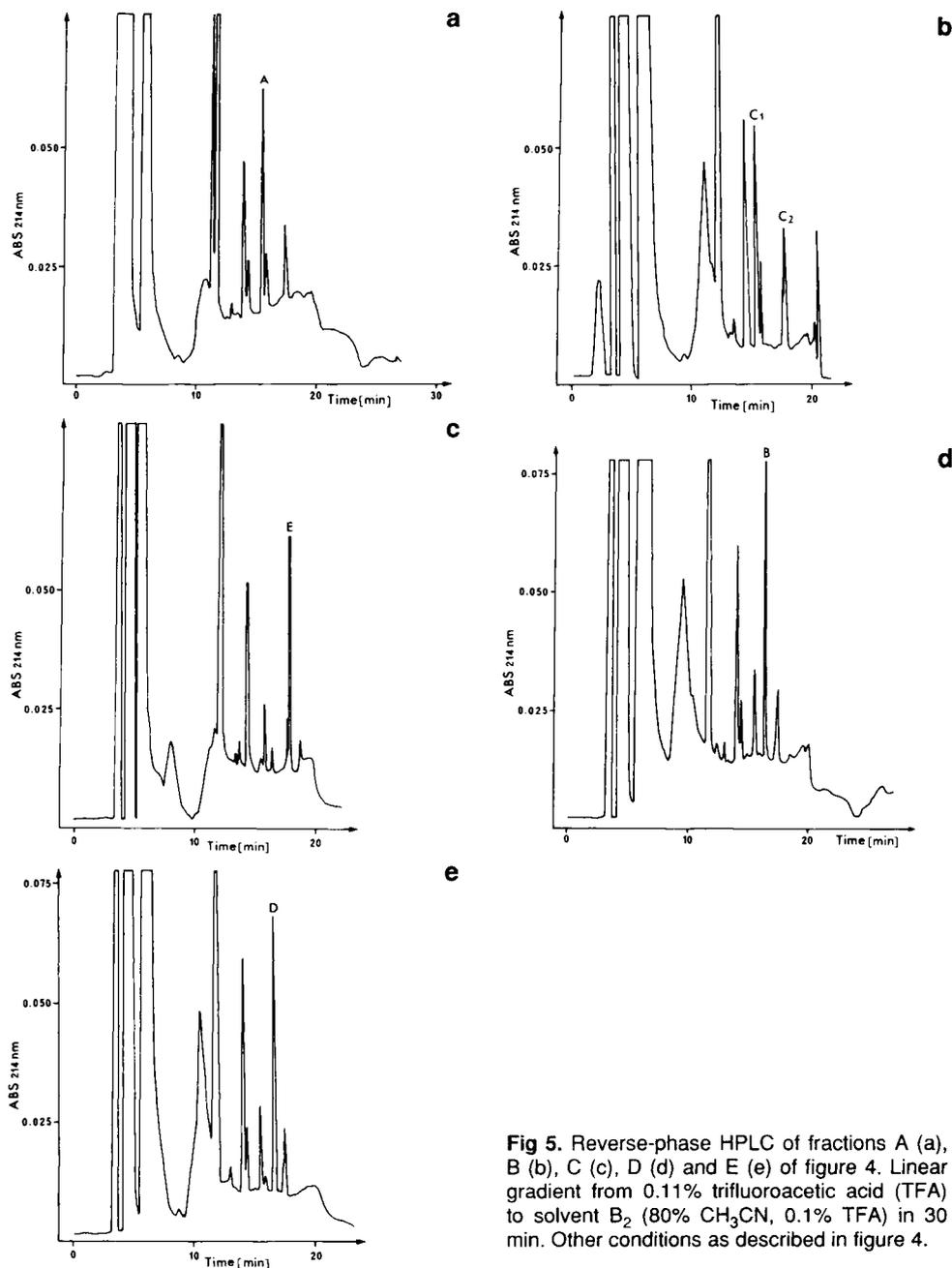
This study confirmed that HDL were resistant to PM and that their apoprotein and lipid composition was not significantly modified. Balanced refeeding involved a significant increase in apo AI. These results suggest that in spite of the reduction in LACT activity with both types of PM, HDL metabolism was not significantly impaired, this was due in part to a normal level of apo AI.

### References

- Glomset JA, Wright JL (1964) *Biochem Biophys Acta* 89, 266-271
- Knipping G (1986) *Eur J Biochem* 154, 289-294
- Meghelli-Bouchenak M, Boquillon M, Belleville J (1987) *J Nutr* 117, 641-649
- Meghelli-Bouchenak M, Boquillon M, Belleville J (1989a) *Nutr Rep Int* 39, 323-343
- Meghelli-Bouchenak M, Belleville J, Boquillon M (1989b) *Nutrition* 5, 321-329

**Erratum**

In the article by C Carles *et al* (*Reprod Nutr Dev* 32 (3), 277-384, please consider that the following figure replaces that already published:



**Fig 5.** Reverse-phase HPLC of fractions A (a), B (b), C (c), D (d) and E (e) of figure 4. Linear gradient from 0.11% trifluoroacetic acid (TFA) to solvent B<sub>2</sub> (80% CH<sub>3</sub>CN, 0.1% TFA) in 30 min. Other conditions as described in figure 4.