Abstract

There is no consensus about the effects of conjugated linoleic acid (CLA) on lipid metabolism, especially in animals fed a high-fat diet. Therefore, the objective of the present study was to evaluate the incorporation of CLA isomers into serum, liver and adipose tissue, as well as the oxidative stress generated in rats refed with high-fat diets after a 48 hour fast. Rats were refed with diets containing soybean oil, rich in linoleic acid [7% (Control Group - C) or 20% (LA Group)], CLA [CLA Group – 20% CLA mixture (39.32 mole% c 9, t 11-CLA and 40.59 mole% t 10, c 12- CLA)], soybean oil + CLA (LA+CLA Group - 15.4% soy - bean oil and 4.6% CLA) or animal fat (AF, 20% lard). The CLA group showed lower weight gain and liver weight after refeeding, as well as increased serum cholesterol. The high dietary fat intake induced fat accumulation and an increase in -tocopherol in the liver, which were not observed in the CLA group. Circulating -tocopherol was increased in the CLA and CLA+LA groups. The high-fat diets reduced liver catalase activity. CLA isomers were incorporated into serum and tissues. In this short-term refeeding experimental model, CLA prevented hepatic fat accumulation, although it produced an increase in serum cholesterol.

Keywords

Conjugated linoleic acid, High-fat diet, Fasting, Refeeding, Fatty acids.