Morphoquantitative analysis of the Ileum of C57BL/6 mice (Mus musculus) fed with a high-fat diet

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Due to the increase in overweight and obesity in humans, various studies have been conducted in recent years that demonstrate the detrimental effects on tissues and organs. The aim of this study was to assess the morphoquantitative changes produced in the ileum of mice, associated with high-fat diets. Fourteen male C57BL/6 mice, 5 months old, were fed two types of diets for 14 weeks. The control group (C) was fed a standard diet (10% fat, AIN-93M) and the experimental group (E) was fed a high-fat diet (42% fat, AIN-93M-AG). The assessments included: body weight, calorie consumption, food efficiency, biochemical analysis of plasma lipids, diameter, total wall thickness, thickness of the tunica mucosa and tunica muscularis, length and width of the intestinal villi, depth of the intestinal crypts and number of goblet cells per mm-2 (NA). For the statistical analysis the Student's t-test was used, considering a P value less than 0.05. The mice in the E group presented greater weight gain (P = 0.028), higher levels of total and LDL cholesterol (P = 0.03 and P = 0.01, respectively), and length of the intestinal villi (P = 0.000). The width of the intestinal villi and the NA of PAS-positive goblet cells presented significantly lower values (P = 0.037 and P = 0.039, respectively) than the C group. The observed changes could be related to the higher demand for fat absorption and to possible alterations in the intestinal microflora and inflammation by action of high-fat diets.

High-fat diet

Ileum

Mouse

lipid

adverse effects

animal

blood

C57BL mouse

ileum

lipid diet

male

mouse

pathology

Animals

Diet, High-Fat

Ileum

Lipids

Male

Mice

Mice, Inbred C57BL