Abstract

The effects of food restriction (FR) on the morphoquantitative aspects of the wall and myenteric neurons of the proximal colon in adult rats were analysed. FR was imposed by duplication of the experimental brood size in relation to the control brood during lactation. The FR group received a 50% reduction of food from weaning until 90 days of age. Samples of the colon underwent histological processing to morphometrically analyze the crypts, muscularis mucosae, tunica mucosa, and muscularis externa. We determined the number of goblet cells and serotoninergic enteroendocrine cells, and morphoquantitatively studied the myenteric neuronal population. FR caused hypertrophy in the tunica mucosa, increase in crypt depth and in the muscular layer of the mucosa, a decrease in the thickness of the tunica muscularis and in the number of goblet cells and an increase in serotoninergic cells. A higher neuronal density in the ganglia and a reduction of the cell profile area were observed in the FR group. FR imposed since lactation led to hypertrophy of the tunica mucosa, a reduction of neutral mucin production, atrophy of the tunica muscularis, and an increase in the survival neuronal in adult rats, attributable to an increase in the number of serotoninergic enteroendocrine cells in mucosa.

Keywords

Enteroendocrine cells, food restriction, goblet cells, intestinal morphology, myenteric neurons, serotonin.