Abstract

The role of serotonergic system in the control of feeding behavior was appraised by electrolytic lesions in the dorsal raphé nucleus (DRN) and administration of para-chlorophenylalanine (PCPA, 3 mg/5 µl, icv). Chronic evaluations were accomplished through 120 and 360 days in PCPA-injected and DRN-lesioned rats, respectively. Acute food intake was evaluated in fasted rats and submitted to injection of PCPA and hydroxytryptophan (LHTP, 30 mg/kg, ip). DRN-lesioned rats exhibited 22-80% increase in food intake up to sixth month, whereas obesity was evident and sustained by whole period. In PCPA-injected rats, an initial increase in food intake followed by hypophagia from 25th to 30th day and a transitory increase of body weight from 5th to 60th day. In the acute study, the LHTP prevented partially the PCPA-induced increase in food intake, suggesting a sustained capacity of decarboxylation of precursor by serotonergic neurons. Slow restoration of the level of food intake in DRN-lesioned rats reveals neuropelasticity in the system that regulates feeding behavior. A plateau on the body weight curve in lesioned rats possibly represents the establishment of a new and higher setpoint of energetic balance.

Keywords

feeding, ingestion, serotonergic system, dorsal raphé nucleus, electrolytic lesion, para-chloro phenylalanine, obesity.