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Parabrachial neuron development: Effects of pre- and neonatal undernutrition in the rat

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ABSTRACT

Pre-and neonatal fasting in the rat has been used as an experimental model to obtain information on how the newborn gustatory system can be damaged, interfering with the basic sensory and hedonic processes to different tastants. Fasting during the prenatal period and for 24 days postnatally results in significant reductions of body and brain weight, number of branches, dendritic density, and cross-sectional area of the PBN multipolar neurons in the central lateral and central medial subnucleus particularly at post-natal days 20 and 30. Furthermore, the underfeeding paradigm affected more the middle portions of the dendritic tree than other parts of the neurons possibly disturbing the afferent characteristics of neuronal activity propagation that may partly disrupt the elaboration of synaptic plasticity at later ages. These findings may play a role in the development of complex physiological phenomena such as food intake, taste discrimination, learning taste aversion, and appetitive behavior.

KEYWORDS

Parabrachial Neurons; Development; Brainstem; Undernutrition; Rats

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