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The physiological and behavioral effects of subchronic intracisternal administration of TGF-β in rats: comparison with the effects of CRF

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ABSTRACT

We studied the physiological and behavioral effects of subchronic intracisternal administration of transforming growth factor-β (TGF-β) for 7 days. Subchronic intracisternal administration of TGF-β significantly inhibited the increase in body weight of rats but did not affect food intake. In the measurement of locomotor activity after the final intracisternal administration on day 7, the total count for 1.5 h increased significantly in the TGF-β group compared with the vehicle group. However, that for 10 h was not different between both groups. Furthermore, significant elevations in oxygen consumption were observed in the TGF-β group during both light and dark phase. Subchronic TGF-β treatment induced a significant decrease in the number of total leukocytes and lymphocytes and the relative weight of the thymus, and a significant increase in brown adipose tissue weight. Corticotropin-releasing factor (CRF) is the primary neuroendocrine factor released in response to stress. Subchronic treatment with CRF, as a positive control, significantly affected body weight, food intake, oxygen consumption, total leukocyte and lymphocyte counts, and thymus and adrenal weight. Subchronic TGF-β administration partially mimicked the stress responses, implicating a role for TGF-β in the brain in stress.

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