

The effect of the ghrelin-associated peptide obestatin on anxiety and depression

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Introduction: Obestatin is a 23 amino-acid gastric peptide, derived from the pre-proghrelin gene, which was originally described as a ghrelin antagonist by decreasing appetite and weight gain. On the other hand, ghrelin was also shown to influence anxiety and depression, however data are lacking on the effects of obestatin.

Methods: The experiments were performed in male CFLP mice (25-30 g), which were given graded doses of obestatin (0.5–1-1.5 $\mu\text{g}/2 \mu\text{l}$ aCSF), intracerebroventricularly. The different behavioral patterns of the animals were detected 30 min later in the elevated plus maze (EPM), open-field (OF) or forced swimming test (FST), respectively. To elucidate the mechanism of action, the animal groups received pretreatment with the CRF1 receptor antagonist antalarmin (0.1 $\mu\text{g}/2 \mu\text{l}$ aCSF) and plasma corticosterone levels were also measured by fluorescence assay, 30 min after each treatment.

Results: The general locomotion, as measured by ambulation distance and time, as well as the number of jumpings and rearings were not influenced by the injection obestatin. However, in the OF test the central ambulation distance and time, while in the EPM the open arm time were reduced, indicating an anxiety-like effect of obestatin. Furthermore, corticosterone levels were increased by obestatin administration. In the FST the immobility time was increased, suggesting a depression-like effect attributable also to this peptide. Antalarmin pretreatment on the other hand blunted the effects of obestatin on behavior and corticosterone levels.

Conclusion: Obestatin has shown to exert anxiety- and depression-like behavior which might be mediated through the activation of HPA axis.

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