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Orexin-A concentrations are related with cognitive deficits in anorexia nervosa

Orexin-A and Orexin-B are a type of neuropeptides linked with many different functions, such as eating and drinking intake or certain cognitive processes. That is why it is suspected that they contribute in the clinical phenotype of anorexia nervosa, despite not knowing the role or the underlying mechanisms. In this article, the relationship between Orexina-A concentration and neuropsychological functioning in patients diagnosed with this disease is explored. The results showed that a low concentration of Orexin-A in patients was associated with a worse performance in cognitive flexibility and decision-making tasks.

Orexins (also called hypocretins) are recently described neuropeptides with localized production in the hypothalamus (lateral and posterior) and with extensive projection to limbic, brain stem and cortical regions. Current studies have linked both peptides (Orexin-A and -B) with functions as diverse as food-drink intake, stabilization of the sleep-wake cycle, homeostasis (particularly with the regulation of energy), reward systems, and also with certain cognitive processes.

On the other hand, anorexia nervosa is an eating disorder characterized by an abnormally low body weight, intense fear of fattening and distorted perception of body image. The studies available to date show that the severe malnutrition that accompanies this disorder affects the entire organism (including brain function), and that with clinical evolution there is deterioration of

neuropsychological functions such as the capacity of cognitive flexibility or decision making. Precisely, these deficits in executive functioning could be favoring not-flexible thinking styles and maintaining distortions in the perception of one's own self-image, which would support the reduced food intake and contribute to the lack of efficiency of current therapeutic interventions (especially in long-evolution patients).

It is suspected that Orexins contribute in the clinical phenotype of anorexia nervosa, although it is unknown what role they play and the underlying mechanisms. A study conducted by Doctors Fernando Fernández-Aranda and Susana Jiménez-Murcia (Psychiatric Service of the University Hospital of Bellvitge) and Dr. Roser Granero-Pérez (Department of Psychobiology and Methodology, UAB) explored what are the relationships between Orexin-A plasma concentrations and neuropsychological functioning in a clinical group of *n=51* women diagnosed with anorexia nervosa, considering as a reference the pattern of associations obtained in a control group of women without eating disorder problems. The results showed that both the levels of Orexin-A and the performance in cognitive tests were significantly lower in the clinical group compared to the control group, and that the reduced concentration of this neuropeptide was associated with worse performance in cognitive flexibility and the decisions making tasks.

The present study opens new ways to the study of the interactions between Orexin-A and the systems involved in the body homeostasis and emotions, particularly in patients diagnosed with anorexia nervosa. The results obtained have relevance in the intervention area since they can contribute to the development of new therapeutic plans in eating disorders (for example pharmacological strategies complementary to present psychotherapies that maximize the probability of success in the short and long term).

Roser Granero Pérez
Department of Psychobiology and Methodology
Universitat Autònoma de Barcelona
Roser.Granero@uab.cat

References

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