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CEREBRAL OPIOID ACTIVITY IN PATIENTS WITH RESTRICTING-TYPE ANOREXIA NERVOSA BEFORE AND AFTER WEIGHT RECOVERY: A [11C]DIPRENORPHINE PET STUDY

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Introduction: Opioid peripheral abnormalities were described in anorexia nervosa (AN). Until now no data have been published on cerebral activity of opioid system in these subjects. Diprenorphine is a ligand with non-specific binding to opiates receptors μ, κ and δ.
Aim: To evaluate in vivo brain opioid receptors binding potential (BP) in patients with lean and recovered from restrictive-type AN by comparison with controls and the relationship with eating-related psychochological and hormonal traits.
Methods: In 17 lean restrictive-type AN patients, 15 recovered AN subjects and 15 age-matched controls we assessed in vivo [^{11}C]Diprenorphine binding by brain positron emission tomography and eating-related psychopathological traits. Inter-groups differences in [^{11}C]Diprenorphine binding were evaluated by voxel-based analyses.
Results: Lean restrictive AN and recovered AN patients presented with similar decreased [^{11}C]Diprenorphine binding in bilateral medial frontal cortex and temporo-parietal cortex. We noted a lower BP in hypothalamo-pituitary structures and also in anterior cingulate gyrus in lean AN patients. Additionally, only recovered AN patients presented with a decreased [^{11}C]Diprenorphine binding in caudate nuclei and putamen. Direct correlations were found between the anterior cingulate gyrus BP and mean cortisol and between the left amygdala [^{11}C]Diprenorphine binding and eating concern score.
Conclusion: The opioid system is widely affected in AN even after recovery in regions known to be involved in the neurocircuitry of addiction and support the hypothesis of an organic dysfunction in AN.

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