CRF1 receptor antagonists as novel pharmacological treatment for bingeing-related eating disorders

C. Cifani, School of Pharmacy, Pharmacology Unit University of Camerino, Camerino Italy

The interaction between dieting and stress is a key factor for triggering binge episodes on palatable food in human binge eaters. Corticotropin releasing factor (CRF) mechanisms are known to play a pivotal role in the regulation of this maladaptive behavior.

The present study evaluated the effect of the CRF1 receptor antagonist R121919 and the corticosterone synthesis inhibitor metyrapone in female rats in which binge eating was evoked by stress and cycles of food restrictions.

Rats were first subjected or not to repeated cycles of regular chow food restriction/refeeding during which they were also given limited access (2 h) to palatable food. On the test day, rats were either exposed or not to the sight of the palatable food for 15 minutes without allowing access (frustration stress), before assessing food consumption for 2 h.

Systemic injections of the CRF1 receptor antagonist R121919, but not of the metyrapone, blocked binge-like eating behavior. Moreover, corticosterone injection did not induce binge eating in non-stressed rats.

Restricted and stressed rats showed up-regulation of crh1 receptor mRNA signal in the bed nucleus of the stria terminalis (BNST) and central amygdala (CeA) but not in basolateral amygdala (BLA) or in the paraventricular nucleus. Injection of CRF receptor antagonist D-Phe-CRF(12– 41) in CeA but not in the BLA blocked binge-like eating behavior.

These findings demonstrate that extra-hypothalamic CRF1 receptors, rather than those involved in endocrine functions, are involved in binge eating. CRF1 receptor antagonism may represent a novel pharmacological treatment for binge-related eating disorders.