

## ABSTRACT

Hypothalamus- Pituitary- Adrenal (HPA) axis is stimulated in bacterial and viral infections resulting in hypercortisolism. Recent evidence indicates that adrenocortical insufficiency may be more common in septic shock, and low-dose hydrocortisone regimens have shown promising results in patients with sepsis. The hyperactivity of HPA axis is corrected during a clinically effective therapy with antidepressant drugs, increasing the number and sensitivity of glucocorticoids receptors (GRs). Novel agents as CRF (Corticotrophin Releasing Factor) antagonists can reduce the high levels of CRF in blood in anxiety disorders, depression, anorexia nervosa and post-traumatic or post-ischaemic neuropsychiatric disorders. Agents that interact with CRF- Binding Protein raise the levels of urocortin (neuropeptide, CRF family member) and other free peptides in brain tissue, with neuro-protective effects. Endocrine withdrawal syndromes and drugs-withdrawal syndromes cause changes in the HPA axis that depend on the degree of tolerance and dependence. HPA axis is hyperactive in cocaine-addicted persons, and CRF increase is responsible for neuropsychiatric disorders and the relapse to cocaine use after therapy. CRF antagonists target to the hyperactivity of HPA axis and represent the suggested strategy for cocaine- addicted persons. The change in the HPA axis after long term chemical exposure to relatively high levels of specific environmental agents triggers multiple chemical sensitivity (MCS), a controversial disorder with a pathophysiological involvement of the brain and the immune system.

**Key-words:** *Hypothalamus- Pituitary- Adrenals axis, drugs, endotoxins, bacterial infections, viral infections.*