PHARMACOLOGICAL MODULATION OF OXIDATIVE STRESS IN HIV RELATED NEURODEGENERATIVE DISORDERS

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Modulation of glutamate turnover represents a key event in many pathophysiological processes within the CNS.This involves astroglial cell activity via the re-uptake of glutamate and through its bioconversion into glutamine (GLN) by glutamine synthase (GS). Neurochemical factors modulating GS interfere with glutamatergic transmission being this enzyme also crucial in the supply of GLN to neurons.Here we demonstrate that gp120 regulate GS and that this effect is further inhibited by the removal of free radicals. gp120 induced an inhibition of GLN release in astrocytes; this effect was accompanied by a reduction of GS expression and by a significant formation of free readicals, most likely due to early iNOS expression. Pre-treating cells with NAC or l-NAME fully reversed these effects. These results show that NO generation participates in the regulation of GS occurring in astroglial cells and this may represent the site of interaction between pro-inflammatory stimuli and other neurotoxins in the brain.Here is demonstrated that antioxidant, such as NAC, may up-regulate GS in astrocytes leading to protective effect against neurotoxic insults supported by an abnormal release of glutamate.