



Short communication

Effects of midazolam and buspirone on *in vivo* concentration of amino acids and monoamine metabolites in the rat hippocampus

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Abstract:

The effects of anxiolytic doses of buspirone and midazolam (established in the conditioned fear test) on extracellular concentrations of glutamate, GABA, serotonin and dopamine metabolites in the hippocampus were examined *in vivo*, in freely moving rats. Buspirone at a dose of 1.5 mg/kg *ip* disinhibited rat behavior in the conditioned fear test (a freezing response) much stronger than 1.0 mg/kg of midazolam. Both drugs enhanced the local concentration of glutamate to the similar extent, and decreased the concentration of 5-hydroxyindole acetic acid (5-HIAA). Buspirone increased also the extracellular levels of dopamine metabolites: homovanillic acid (HVA) and 3,4-dihydroxyphenylacetic acid (DOPAC). It is suggested that the changes in hippocampal glutamate probably are not directly associated with modification of rat emotional behavior after benzodiazepines and azapirones. The present results provide more arguments for the role of hippocampal 5-HT in the effects of anxiolytic drugs.

Key words:

midazolam, buspirone, freezing, 5-HIAA, glutamate, hippocampus
