Role of metabotropic glutamate receptors in animal models of Parkinson’s disease.


The efficacy of the majority of drugs currently used for treatment of Parkinson’s disease is insufficient. Moreover, such therapeutics are not devoid of serious side effects. Multiple studies on animal models of parkinsonism have shown that new class of drugs, acting selectively on metabotropic glutamate receptors (mGluRs) might be very promising for the future therapy of Parkinson’s disease.

This review briefly describes changes in glutamatergic transmission in the neuronal circuitry of the extrapyramidal system that occur in parkinsonian patients, contains background information on structure, function and distribution of mGluRs throughout the basal ganglia and concentrates on discussion of the results obtained from numerous animal model studies aimed to establish potential antiparkinsonian properties of various mGluR ligands. The reviewed literature data indicate that among these compounds group I mGluR antagonists and group II mGluR agonists might be beneficial to the treatment of parkinsonian akinesia and muscle rigidity.

Key words: Parkinson’s disease, metabotropic glutamate receptors, animal models, review

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