
The last decade brought a considerable progress in pharmacotherapy of addiction. Basing on recently gained knowledge of mechanisms of development of addiction and the physiology of the brain reward system, several therapeutic strategies have evolved. The strategies aimed at targeting the basic mechanisms of addiction rely on the premises that addiction is caused by adaptive changes in the central nervous system and that craving, which is the main cause of relapse, depends on dopaminergic mechanisms and requires high general excitability. The pharmacological approach involves drugs that reduce neuronal adaptability by inhibiting the calcium entry to neurons both through voltage-gated channels (e.g. nimodipine) and NMDA receptors (e.g. memantine), and drugs that stimulate the inhibitory GABAergic system (γ-vinyl-GABA, baclofen). Particular attention is paid to the compounds that may attenuate dopaminergic hyperactivity, without considerable suppression of tonic activity of dopaminergic neurons (e.g. BP 897, a partial dopamine D₃ receptor antagonist). Specific strategies are aimed at interference with the action of particular drugs of addiction. An important group includes the agonistic therapies (known also as substitution or maintenance therapies) in which a long-acting agonist is used in order to reduce the action of the drugs of high addictive potential (e.g. methadone against heroin addiction or vanoxerine (GBR 12909) against psychostimulants). Other specific strategies aimed at reduction of the transport of molecules of addictive substances into the brain: the approaches involve preparation of antibodies that form complexes unable to cross blood-brain barrier or enzymes accelerating the metabolism of the compounds in the blood (e.g. variants of butyrylcholinesterase). A considerable progress has been made in combating the abuse of legal addictive substances, alcohol (naltrexone, acamprosate) and tobacco (bupropion). The prospects for developing effective pharmacotherapies against addiction are bright. Unfortunately, ideological and social implications, as well as the conflict of interest with illegal narcotic manufacturers and distributors, may considerably hamper the progress in combating addiction (e.g. difficulties in introduction of methadone).

**Key words:** addiction pharmacotherapy, addictive stimulants, antiaddiction vaccines, legal psychotropic substances, general antiaddictive strategies, specific antiaddictive strategies