The serotonergic system and its role in cocaine addiction

Małgorzata Filip, Małgorzata Frankowska, Magdalena Zaniewska, Anna Gołda, Edmund Przegaliński

Department of Pharmacology, Institute of Pharmacology, Polish Academy of Sciences, Smełna 12, PL 31-343 Kraków, Poland

Correspondence: Małgorzata Filip, e-mail: filip@i-pan.krakow.pl

Abstract:
Cocaine is an alkaloid with psychostimulant action and high addictive potential. It possesses high affinity for the transporters of dopamine, serotonin (5-HT) and noradrenaline, and blocks reuptake of the above-mentioned monoamines. The present review summarized the contribution of 5-HT neurotransmitter system to rewarding and aversive properties of cocaine, to cocaine withdrawal and its long-term abuse. The present state of knowledge of 5-HT neurotransmission justifies the opinion that pharmacological manipulation in the 5-HT system may efficiently counteract the effects of cocaine withdrawal and prevent reinstatement of its abuse.

Key words:
cocaine, serotonin (5-HT), serotonin system, serotonin ligands, addiction, reward, relapse, withdrawal