P03-225

EXPLORING THE ROLE OF CELL RECEPTORS IN SUBSTANCE USE

M. Osain Welcome, V. Alekseevich Pereverzev

Belarusian State Medical University, Minsk, Belarus

Understanding the complex mechanisms in the development of substance use disorders lies at the receptor level - binding potential, ability of ligand to stimulate receptor autophosphorylation, degree of receptor activation/deactivation reactions - are the basis of the pathogenesis of alcohol/other drugs induced liver and brain damages, ischemic heart disease, allostatic load-effect, intoxication, addiction, tolerance, craving, relapse, and their associated complex chain of enzymatic reaction are key steps to developing effective prevention and treatment. Dose response inhibition of GP IIb/IIIa, P-selectin, CD 63 and CD 107a human platelet receptors by ethanol has been observed. The activation of GABA-B receptor, has recently been shown to be effective in inducing abstinence and reducing alcohol craving and consumption in alcoholics. The fact that alcohol reduces the activity of glutamate by interacting with NMDA receptors has shown promising effects in drug therapy. The anticonvulsant, Topiramate acts on AMPA-kainate receptors, and decreases glutamate activity while increasing GABA activity. Decreased activity of 5-HT3 serotonin receptor has been shown to reduce the frequency and quantity of drinking in humans. The dopamine receptors also play significant role in substance use. Another recent candidate of therapeutic target is the brain CB1 receptor that responds to endocannabinoids. Comprehensive research is needed to confirm and further explore the effects of new therapeutic agents and addictive substances on various cell receptors, which are implicated in substance use disorders.

References

1. Dalley J et al. Science. March 2, 2007.

2. NIAAA. Alcohol Alert No. 61. April 2004.

https://doi.org/10.1016/S0924-9338(10)71279-7 Published online by Cambridge University Press