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ARE ADDUCTS RESPONSIBLE FOR ADDICTIVE BEHAVIORS?

M. Osain Welcome, V. Alekseevich Pereverzev

Belarusian State Medical University, Minsk, Belarus

Sometimes addiction is referred to as the hallmark of drug abuse. But, whether addictive behaviors are caused by the drug itself, its metabolites, or adducts are still poorly understood. This paper is a review of recent data concerning the role of adducts in addictive behaviors. A number of studies have shown the ability of psychotic substances to react with proteins in vitro to give stable and unstable adducts. For instance, the interaction of acetaldehyde with proteins has been identified as a diastereoisomeric mixture of imidazolidinones. Malondialdehyde and acetaldehyde can react with proteins synergistically to form hybrid protein conjugates - MAA adducts. Biological responses to adduct-modified proteins may play a role in the pathology of drug-induced organ malfunctions/diseases. Majority of data shows that adducts of magnesium halide/alcohol; lipoprotein; 4-mthyl-1,4-dihydropyridine-3,5-dicarbaldehyde; FAAB; MAA are responsible for the damaging effect of alcohol at the cell, tissue and organ level and might be greatly responsible for addictive behaviors among drug users.

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https://doi.org/10.1016/S0924-9338(10)71277-3 Published online by Cambridge University Press