



Journal of Alcoholism & Drug Dependence | Volume 6, Issue 4

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Received date: July 10, 2018; Accepted date: July 15, 2018; Published date: July 20, 2018

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Citation: Wang LJ (2018) Journal of Alcoholism & Drug Dependence | Volume 6, Issue 4. J Alcohol Drug Depend 6: e143. doi:10.4172/2329-6488.1000e143

Editor Note

Journal of Alcoholism & Drug Dependence publishes recent trends in the field of drug abuse. The Journal brings together researchers working in diverse areas, such as neurobiology, molecular biology, cell biology, epidemiology, public policy, treatment and rehabilitation of individuals affected with addictive disorders. The journal offers an impressive platform for the dissemination of research outcomes related to drug and alcohol abuse. Each year, substance abuse imposes a huge economic burden, in terms of treatment, expenditure, prevention costs, healthcare and hospital costs, high morbidity and mortality. Individuals addicted to substance abuse are stigmatized due to the marginalization. Alcohol and drug abuse not only affects the environment but also one's own state of mind. There are several molecular and cellular mechanisms that underlie the substance abuse and its treatment. Deregulated neurological network and brain structure *via* altered neurotransmitter systems, hormone systems, endogenous peptides, and other neuroimmune processes is known to underpin drug and alcohol abuse. These eventually lead to complex behaviors, such as tolerance, dependence, sensitization, and craving that characterize the addicted state. Disruption of neurological function has been well characterized with respect to the canonical metabolic pathways involved in addictions such as cocaine, alcohol, and dopaminergic substance abuse. A number of studies, including genome wide association studies (GWAS) have identified relevant allelic contributors to the addiction phenotypes. Studies pertaining to alcohol dehydrogenase gene family have played an important role in advancing our conceptualization of the genetic aspects of addiction phenotypes, metabolism of alcohol products and risk of alcoholism. Alcohol metabolism by the enzyme cytochrome P450 2E1 (CYP2E1) and its role in creating oxidative stress *via* the generation of reactive oxygen species (ROS) were investigated. Chronic alcohol ingestion is associated with enhanced reactive oxygen species (ROS) generation, enhanced histone deacetylase (HDAC) expression, glutathione (GSH) depletion, and thiol/disulfide redox potential oxidation, all of which result in oxidative stress, and can lead to inflammation and cell injury. This is reflected in high levels of pro-inflammatory cytokines in individuals suffering from alcohol abuse. Additionally, chronic alcohol abuse also affects the nutritional status, both by supplying dietary energy as well as by acting as an appetite suppressant. It may also cause nutrient malabsorption or maldigestion, leading to hepatic, pancreatic, and intestinal complications. Therefore, identification of vulnerable genes associated with drug abuse is of utmost importance. They can

serve as markers to identify individuals who might be at a greater risk of developing an addiction, or who might be more susceptible to particular drugs, or benefit from specific treatments. Such information can be used to devise prevention strategies towards individuals who are the greatest risk and/or who are most likely to benefit from them. Parira et al. [1] evaluated the effect of a histone deacetylase inhibitor (HDACi) and Trichostatin A (TSA), on the production of chronic alcohol-induced reactive oxygen species (ROS) in human monocyte-derived dendritic cells (MDDCs). TSA is known to inhibit the production of pro-inflammatory cytokines. The study revealed that TSA has a protective effect on ethanol treated cells; however, it is transient. Analysis of Nrf2, a key transcription factor consistently associated with anti-oxidative response revealed that chronic alcohol consumption by itself results in the upregulation of Nrf2 expression, which is further enhanced in combination with TSA. This can be attributed to the fact that acetylation is central to Nrf2 mediated transcription and reduction of HDAC levels using TSA, leads to increased acetylation and subsequent activation of Nrf2, particularly its anti-oxidant properties. Ray [2] articulated a short communication in the context of addiction, its treatment and recovery. The note covers ontology of addiction, integrated therapy for recovery from addiction by psychotherapy and spirituality. The note emphasizes that the literature on these aspects function like a guiding light in effecting recovery from addiction. In the context of opioid addiction and alcoholism, Bauder [3] articulated a short communication that describes the barriers in the context of rural treatment. The note emphasized on the utilization of information technology for patient monitoring, to meet the challenges of medical care, increase the pace of evaluations as well as to extend the outreach. This issue is of significance in developing strategies for surveillance, assessment, treatment and rehabilitation of substance abuse.

References

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