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Editor Note

Alcoholism and drug dependence imposes a severe burden on the economy; they are the major causes of rampant disability, illness, and premature death. The societal burden of these disorders encompasses the significant losses in productivity, use of costly medical resources, serious motor vehicle accidents, and criminal activity. Thus, it is imperative to study the underlying mechanisms of such abuse, in order to check their rampant spread.

The Journal of Alcoholism & Drug Dependence is a premier journal in the field of drug addiction and rehabilitation. The current issue of the Journal of Alcoholism & Drug Dependence presents some interesting findings. Dehkordi et al. [1], investigated whether orexinergic innervations are present in the nicotine-activated areas of the reward-addiction circuitry, in mice models of nicotine addiction. Gilley [2] authored a review on the various aspects of Substance Use Disorder (SUD). Whitty and Clifford [3] authored a review on the various factors influencing the distribution of cost-effective interventions for Alcohol abuse in indigenous communities of Australia. Patel et al. [4], reviewed the research conducted on the gut-liver axis and the potential role of probiotics in alcoholic liver disease. Ray et al. [5], investigated the causal interaction between the various regions of the mesocorticolimbic system (MCLS), which is known to be involved in reward and motivation process, in cocaine users.

Hypocretins and orexins are hypothalamic neuropeptides which are thought to play a key role in the regulation of arousal and sleep states. The finding that abnormal levels of these peptides in cerebrospinal fluid (CSF) are associated with narcolepsy has propelled research on the association of these peptides with human disease. Research has now implicated Orexins/hypocretins in drug addiction and reward process. However, the neuroanatomical relationship between the drug-activated (nicotine) cells and orexinergic nerve fibers within the reward-addiction neurocircuitry has not yet been established. Dehkordi et al. [1], investigated whether orexinergic innervations are present in the nicotine-activated areas of the reward-addiction circuitry, in mice models of nicotine addiction. The authors observed Orexin-immunoreactive (IR) nerve fibers and terminals at multiple sites of the nicotine (NIC) reward-addiction circuitry in close proximity to, and intermingled with NIC-induced c-Fos-IR neurons of the locus coeruleus (LC), nucleus accumbens (Acb), ventral tegmental area (VTA), LH and paraventricular thalamic nucleus (PVT).

Substance use disorders (SUD) are a group of chronic relapsing disorders which have major health and societal impacts. Approved medications are available for certain disorders such as tobacco, heroin/prescription opioid addictions. Whereas, for other substances such as cocaine, cannabis, and amphetamines no approved medications are available. There is a huge gap between our general understanding of

addiction, and the definition of addiction as per neuroscience. These days, Substance Use Disorder (SUD) is regarded as a manifestation of the Reward Deficiency Syndrome, which is known to contribute to a spectrum of disorders associated with addictive, impulsive, and compulsive behaviors. Gilley [2] has authored a review on the various aspects of SUD. Alcohol abuse is a major concern in Australia. The negative impact of alcohol abuse presents a disproportionately high health burden for certain sections of the Aboriginal population. A key strategy for decreasing the harms caused by alcohol abuse in indigenous Australian communities is the distribution of cost-effective interventions in indigenous-specific health-care programs. Whitty and Clifford [3] have authored a review on the various factors influencing implementation of such a strategy in indigenous communities.

There is a significant relationship between alcohol abuse and liver disease. Increased bacterial endotoxin in the portal circulation, the presence of liver enzymes like aspartate aminotransferase (AST), alanine aminotransferase (ALT), and triglyceride suggests that the gut-liver axis plays a key role in alcoholic liver disease (ALD). Patel et al. [4], have reviewed the research conducted on the gut-liver axis and the potential role of probiotics in alcoholic liver disease. While the effective connectivity (EC) between brain regions has been extensively investigated in chronic users of cocaine, but until now none of the studies have examined EC in a resting-state scan. Ray et al. [5], aimed to investigate the causal interaction between the various regions of the mesocorticolimbic system (MCLS), which is known to be involved in reward and motivation process, in cocaine users, using functional magnetic resonance imaging (fMRI). The authors observed that in the resting-state scan, the ventral tegmental area (VTA) of cocaine smokers initiates causal connections to limbic system, the midbrain, and the frontal regions in a feed-forward manner.

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