"Behavioral aspects of environmental enrichment in response to nicotine addiction and memory function".

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SUMMARY:

Addiction is a familiar phenomenon around the world. Drug addiction is a chronic, relapsing disorder in which there is a compulsive and drug-seeking and drug-taking behavior with negative consequences. Majority of people are found addicted to the legal substances, such as nicotine, caffeine and alcohol. Nicotine is an alkaloid found in tobacco and is the main cause leading to addictive tobacco smoking. Along with known genetic and psychological factors leading to nicotine addiction, some environmental factors are also known to influence its addiction like social isolation [1, 2]. Environmental enrichment (EE) is a means of improving human welfare by providing opportunity to interact socially. Enriched environment improve physical or psychological health, increase neurogenesis during neurodevelopment of brain. In our present investigation we have shown that the enriched environment has protective effects against nicotine addiction. In addition to this we have also assessed the effects of enriched environment on learning and memory in rats [3, 4]. Here, the Male Albino Wister rats were divided into 2 groups. Rats in first group were provided isolated environment while in second group were socially combined and were placed in an enriched environment 2 weeks before performing the test. Rats in both groups were further divided into control and test rats; that were treated with intraperitoneal (I.P) injections of nicotine at a dose of 0.5mg/ml/kg. Addiction parameter was evaluated by conditioned place preference (CPP) test [5]. Learning and memory was assessed by elevated plus maze test. Behavioral studies statistics were analyzed by ANOVA, which showed significant effects of enriched environment in reducing nicotine addiction. Furthermore it also reduced the drug seeking behavior and improved learning and memory function in rats. Our findings showed that positive environmental conditions play a beneficial role in reducing or treating the adverse effects of nicotine addiction and enhances memory acquisition in rats. Thus, we could show that enriched

environment induces increase in neurogenesis which may also play part in improved memory performance.

References:

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