Keywords: defense mechanisms, substance abuser, treatment

Effects of Hexane Extract of Heated Marijuana on Motor Coordination in Male Wistar Rats

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Background and Aim: Cannabinoids are compound divided into two groups depend on where they are produced: endo- and exo- cannabinoids. Their activity involves endocannabinoid system which consist of Cannabinoid G-protein coupled (〖〖CB〗_1 ,CB〗_2) and non-cannabinoid receptors, endogenous ligands and enzymes which produce and metabolize cannabinoids. Anti-Nausea and anti-spastic effects are among results of activity of this system. Some of exogenous cannabinoids are present in marijuana. In this research we are to investigate effects of injection of acute hexane extract on motor coordination.

Methods: First, 50g marijuana was heated in 180°C for 10 minutes and hexane extract was produced from it. Then 18 male wistar rats weighing 250-300g grouped into 3 (each consist of 6 rats) for injection: control group with no injection, sham group with i.p. injection of the solution used as vehicle (Tween 80, ethanol and saline with 1/1/8 proportions) and the last group with i.p. injection of the extract in 50mg/kg dosage. Each group was evaluated with rotarod apparatus in order to investigating motor coordination.

Results: marijuana extract respect to control and sham groups could significantly ($P<0.01$) decreases the time of staying of rats on rotarod cylinder therefore decreases their motor coordination.

Conclusion: cannabinoid receptors especially 〖CB〗_1 are presents in different parts of central nervous system as central cannabinoid system. Axons and axon terminals of basal ganglia, brain cortex, Granular cells of molecular layer with cerebral basket and purkinje cells as effective regions in control of coordination have a high density of 〖CB〗_1 receptors. Activating this receptor in pre-synaptic neuron inhibits adenylyl cyclase and production of cAMP thus surpasses release of synaptic mediators such as glutamate. Beside the endocannabinoid system also interacts with opioid and adenosine system which have roles in movement and coordination. Thus we can conclude that heat may decarboxylate cannabinoids which are presented in marijuana and the decarboxylated form shows maybe more affinity to 〖CB〗_1 receptors and this connection may decrease motor coordination.

Keywords: Key words: Marijuana, Motor coordination, Hexane extract, 〖CB〗_1 receptor.

Anxiety Effect of Hexane Extract of Heated Marijuana in Male Wistar Rat

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Background and Aim:marijuana is a narcotic increasingly has been used in recent decades and can cause damages in brain higher function such as attention and memory. These effects are mediated by phytocannabinoids. Entering the body and connecting to cannabinoid receptors, these compounds can activate the endocannabinoid system. This system is spread and active in the whole body and has interaction with the other systems such as opioid system. Anti-pain and anti-inflammatory effects are results of function of this system. This research investigates the effects of acute injection of hexane extracts of marijuana on anxiety and motor activity.

Methods: First, 50g marijuana was heated in 180°C for 10 minutes and hexane extract was produced from it. Then 18 male wistar rats weighing 250-300g grouped into 3 (each consist of 6 rats) for injection: control group with no injection, sham group with i.p. injection of the solution used as vehicle (Tween 80, ethanol and saline with 1/1/8 proportions) and the last group with i.p. injection of the extract in 50mg/kg dosage. To investigate anxiety each group was tested with plus maze.

Results: Data analyzing showed injection of marijuana cause significant decrease in time spent in the open arms (so increasing the level of anxiety) ($p<0.01$).

Conclusion:marijuana like other narcotics may be able to affect anxiety and stress via probable altering synaptic activity of limbic neurons. Prelimbic region and medial prefrontal cortex are projected to parts of the brain involved in fear and anxiety, because of the presence of cannabinoid 〖CB〗_1 and non-cannabinoid Transient Receptor Potential Vanilloid Type 1 (TRPV1) receptors ,so, this regions is affected by both cannabinoid and endovanilloid systems. Probably cannabinoids of marijuana has more affinity to TRPV1 than 〖CB〗_1 in prelimbic region. Activation of TRPV1 elevates entrance of calcium and release of mediators such as glutamate and nitric oxide which involved in anxious responses. Affecting serotonin neurons is another reason for anxiety and decrease of motor activity. Serotonin decreases the release of ACTH and Corticostron and induces anti-anxiety behavior. But probably cannabinoids inhibits release of Serotonin via activation of 〖CB〗_1 receptors which presented in serotonin neurons.

Keywords:cannabinoids, Anxiety, Marijuana, TRPV1, 〖CB〗_1

A Research on Nurses Working in Drug Rehabilitation Centers, Documentation Domain.

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