

Cognitive Functions in Patients with Cannabis Use Disorders

Because cannabis use often precedes the use of other illicit psychoactive substances, it has been characterized as a gateway to these other substances (1). Also the evidence suggests that, along with other harms, such as cognitive function impairments, cannabis is a significant risk factor in the etiology of psychosis (2). Nevertheless, if we look at the data of recent years, probation admissions to Addiction Center (AMATEM) within our hospital, which are related with cannabis use increase significantly; “number of first admissions/number of control admissions” for 2008, 2009 and 2010 are as 2318/24261, 3759/31862 and 5639/30959 respectively. Also epidemiological studies show that the number of adults using cannabis is increasing (3). There are even some political events advocating for the decriminalization of non-medical cannabis use in the United States: April 20 has evolved into a counterculture holiday, where people gather to celebrate and consume cannabis (4).

Many factors can impact cannabis-related impairment and recovery of cognitive functions, including age of onset of smoking cannabis, years of use, and amount of regular use (5). Adolescents are more vulnerable to using cannabis, and because of their stage of mental development, the cognitive effects are more pronounced (2). Some cannabis-related cognitive function deficits improve after cessation of cannabis use, but growing evidence also suggests that other deficits persist after cannabis is discontinued and may hinder an individual’s ability to make the best use of behavioral therapies, putting him or her at greater risk for relapse to cannabis use (6).

Cannabis seems to continue to exert impairing effects in executive functions even after 3 weeks of abstinence and beyond. Although basic attentional and working memory abilities are largely restored, the most enduring and detectable deficits are seen in decision-making, concept formation, and planning. Verbal fluency impairments are somewhat mixed at this stage. Similar to the residual effects of cannabis use, those studies with subjects having chronic, heavy cannabis use show the most enduring deficits following three weeks or more abstinence (7). With the recent reporting of regional structural brain changes in long-term heavy cannabis users (reduction in hippocampal and amygdala volumes), research has yet to examine the extent to which such alterations may be reversible with abstinence (8). Nevertheless, one can suggest that some of these impairments are not completely reversible upon cessation of cannabis use, and moreover may interfere with the treatment of cannabis addiction. Therefore, targeting cognitive impairment associated with chronic cannabis use may be a promising novel strategy for the treatment of cannabis addiction (9).

Currently, there is a lot of interest in cannabis use as a risk factor for the development of schizophrenia. Cognitive dysfunction associated with long-term or heavy cannabis use is similar in many respects to the cognitive endophenotypes that have been proposed as vulnerability markers of schizophrenia (8). While acute administration of cannabis to patients with schizophrenia exacerbates symptoms and cognitive impairments and may have enduring effects, cannabis has also been found to have some beneficial effects on cognition, at least in certain subgroups of patients (10). Cannabis user patients had better attention and executive functions than non-cannabis user patients at baseline and after one year of treatment in a representative sample of first-episode schizophrenia patients. Cannabis user patients appear to comprise a subgroup of patients with a better premorbid adjustment and premorbid frontal cognitive functions (11). Thus, while cannabis use is traditionally associated with cognitive impairment, the relationship is more complex in the case of schizophrenia.

Meta-analyses demonstrate that patients with established schizophrenia with a cannabis

use history display superior cognitive abilities compared with noncannabis-using patients. Furthermore, this study showed that better cognitive performance is seen only in lifetime users, but not in novice users (10). In a recent study, relative to controls, first-episode psychosis patients with a history of cannabis use displayed only selective neuropsychological impairments while those without a history of cannabis use displayed generalized deficits. When directly compared, patients with a history of cannabis use performed better on tests of visual memory, working memory, and executive functioning. Patients with early onset cannabis use had less neuropsychological impairment than patients with later onset use. Authors suggested that, this association between better cognitive performance and cannabis use in schizophrenia may be driven by a subgroup of “neurocognitively less impaired” patients, who only developed psychosis after a relatively early initiation into cannabis use (10).

Related with this subject, I want to remind you that in the 4th National Congress of Psychopharmacology, which will be held in Antalya on November 23 – 27, 2011, a panel with the title of “Cannabis; relaxing to madness” will be included and a variety of topics related with cannabis will be discussed.

Also 7th National Alcohol and Substance Dependence Congress (<http://www.bagimlilikkongresi2011.com>) organized by AMATEM clinic of our hospital in collaboration with Dependence Psychiatry Association will be held in Papillon Ayscha Hotel, Belek-Antalya, on December 8-11, 2011. In this congress, both new advances in addiction field and practical experiences, including cannabis, will be discussed.

I would like to thank all of our colleagues for their support to our journal. Hope to meet you in our following issue.

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Kaynaklar

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