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Case Report

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Case study: how the use and abuse of cannabis is related with organic brain damage and psychotic symptoms

Abstract

Background: Many studies have been done in order to show that the use of Cannabis can cause psychotic symptoms and brain damage. The aim of this study is to investigate closely what symptoms are presented in chronic users of cannabis. Also, demonstrate with a clinical investigation that chronic use of cannabis (and withdrawal syndrome too) can cause organic brain damage and psychotic symptoms.

Case presentation: Mr. K is a 31 years old man. He is from Nigeria. He graduated from college at Nigeria. Since 2009 he lives in Greece. He has a story of abuse of cannabis lasting 11 years, since his early 20s. He smokes cannabis daily, two (2) "trifoliate" cigarettes without adding tobacco with nicotine. The two (2) "trifoliate" cigarettes correspond to one (1 gr) gram of cannabis approximately.

Methodology and results: During the interview his behavior did not give any information relating to psychiatric/psychological disorder or cerebral dysfunction. He answered openly and honestly all the questions. Through the appropriate questions for detecting clinical symptoms of psychopathology were observed some elements of psychological dysfunction.

Also, he performed a set of neuropsychological tests to investigate, if he presents cerebral dysfunction. The tests showed that there were some elements of organic brain damage. With the help of the interview and tests, that are valid and reliable tools, we were able to identify and find the presence of psychotic symptoms and panic attacks which were directly related to the use of cannabis, as these occur under the influence of cannabis. Moreover, the chronic use of cannabis has caused him brain dysfunction.

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Methodology

For this study clinical evaluation within the interview were used, consisting of both closed and open questions.[1-4] Also valid and reliable clinical neuropsychological tests were used, precisely including Bender Visual Motor Gestalt Test and Rey Osterrieth Complex Figure Test.

Clinical evaluation

From the clinical examination was found that Mr. K. presented many positive psychotic symptoms and panic attacks. Also, his mood was characterized as depressed throughout the duration of the interview.

On one hand, when he was under the influence of cannabis, he had delusions and perceptual disorders. He stated that others wanted to harm him (Delusions of Reference and Persecutory Delusions), he also stated that he was capable of. s ic "speaking with. God, but sometimes also with the Devil" (Religious Delusions) and believed that he was a very important person (Grandiose delusions). Moreover, he believed that he could read the thoughts of others and that others could read his thoughts too (Delusions of mind being read). He had presented Delusion of thought broadcasting, thought insertion and Delusions of catastrophe.[5-8]

On the other hand, we observed perceptual disorders. Specifically he stated Auditory Hallucinations. For example, he heard. s ic "someone shouting his name through the. Closet, listening to curse him and say that "he smokes too much, and will affect the brain". These voices were reported in the third person singular, characteristic of auditory hallucinations. Also, he reported visual hallucinations, e.g. "he sees beautiful women".

The examination of his mental condition has shown that he presents memory lapses and significant impairment of concentration, attention and deductive reasoning.

Neuropsychological assessment

We used the valid and reliable clinical neuropsychological tests Bender Visual Motor Gestalt Test και Rey-Osterrieth Complex Figure Test, in order to investigate if he had brain damage and disturbed cognitive functions.[9,10]

Rey-Osterrieth complex figure test: The Rey-Osterrieth Complex Figure Test (ROCF a neuropsychological assessment in) is which examinees are asked to reproduce a complicated line drawing, first by copying it freehand (recognition), and then drawing from memory (recall).[11-14] This test permits the evaluation of different functions, such as visuospatial abilities, memory, attention, planning and working memory (executive functions).

Three conditions are most commonly used in the ROCF.

Copy: In the Copy condition, the examiner is given a piece of paper and a pencil, and the stimulus figure is placed in front of them. They reproduce the figure to the best of their ability. The test is not timed, but the length of time needed to copy the figure is observed. Some administrators use a series of colored pencils, in order to preserve a record of the order in which design elements were reproduced.[15] However, because of concerns that the use of color changes the nature of the test and makes it easier for the subject to remember the figure, the current test manual suggests that this should not be done. Instead, the evaluator should take notes on the process the examinee uses.[16] Once the copy is complete, the stimulus figure and the examinee's copy are removed from view.

Immediate recall: After a short delay, the examinee is asked to reproduce the figure from memory.

Delayed recall: After a longer delay (20–30 minutes), the examinee may again be asked to draw the figure from memory. Examinees are not told beforehand that they will be asked to draw the figure from memory; The Immediate and Delayed Recall conditions are therefore tests of incidental memory.[17] Each copy is scored for the accurate reproduction and placement of 18 specific design elements. Additionally, the test administrator can note their qualitative observations regarding the examinee's approach to the task and the effectiveness of any apparent strategy use.

Results

Copy: Rates: 28 points (being excellent a score of 36 points).

The average score on this test is 32 points. The score gathered by the examinee copying the project (28/36) was below the average for the total population, indicating that it was affected the perceptual functions and the ability of the examinee to perform simple tasks, as represented in this case by copying a drawing.

Immediate recall: m

Rates: 4 (being excellent a score of 36 points) The reproduction of a figure by memory was imperfect. Score gathered by the examinee (4/36) has a very important indication that there is some neuropsychological dysfunction, which affects the visual memory of the examinee.

Delayed recall: We didn't proceed in this task due to the results of immediate recall.

Bender visual motor gestalt test: The Bender Gestalt Test, or the Bender Visual Motor Gestalt Test, is a psychological assessment instrument used to evaluate visual motor functioning and visual perception skills in both children and adults.[18] Scores on the test are used to identify possible organic brain damage and the degree maturation of the nervous system.[19,20]

The Bender Gestalt Test is an individually administered pencil and paper test used to make a diagnosis of brain injury.[21-24] There are nine geometric figures drawn in black. These figures are presented to the examinee one at a time; Then, the examinee is asked to copy the figure on a blank sheet of paper.[25,26] Examinees are allowed to erase, but cannot use any mechanical aids (such as rulers). The popularity of this test among clinicians is most likely the short amount of time it takes to administer and score. The average amount of time to complete the test is five to ten minutes.[27]

The Bender Gestalt Test lends itself to several variations in administration. One method requires that the examinee view each card for five seconds, after which the card is removed.[28-31] The examinee draws the figure from memory. Another variation involves having the examinee draw the figures by following the standard procedure. The examinee is then given a clean sheet of paper and asked to draw as many figures as he or she can recall.[32]

Last, the test is given to a group, rather than to an individual (i.e., standard administration). It should be noted that these variations were not part of the original test.

Results

Due to neuro psychological dys function of the brain which affect the cognitive functions of the examinee. The results of both Rey Osterrieth Complex Figure Test and Bender Visual Motor Gestalt Test indicated some elements of organic brain damage, which affect his cognitive functions.[33-36]

Conclusion

The case study helps to investigate and observe symptoms and signs in which we want to focus on. The neuropsychological tests are tools that help us to get additional information about the state of cognitive functions of the individual and any indication that there is some neuropsychological organic brain dysfunction.

So we observed that in our case patient, the systematic use of cannabis led not only to the appearance of psychotic symptoms, but also was linked to brain dysfunction. Furthermore, were detected perceptual disorders and visual constructive disability? We observed significant problems in short-term and long-term memory of the examinee, characterized mainly by memory lapses and difficulty to recall information that was related with visual memory. Apart from the difficulty that the person had to remember the figure that was copied previously, he had considerable difficulty in reproducing the figures. Reflect this significant evidence relating to organic brain dysfunction.

The psychotic symptoms occurred during the use of cannabis, and depravation of it. He presented psychotic symptoms triggered at withdrawal. The withdrawal symptoms, he presented included panic attacks. e can hypothesize that when the patient. Experienced W anxiety and excessive stress under withdrawal syndrome of cannabis, it displayed psychotic symptoms, mainly positive psychotic symptoms.

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None.

Conflicts of interest

The authors declare that there is no conflict of interest.

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