

CARNITINE-INDUCED PSYCHOSIS IN A HEALTHY ADOLESCENT: A CASE REPORT

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INTRODUCTION

Acetyl-L-carnitine(ALC) is a non-essential organic nutrient. ALC is easily transported across the blood-brain barrier and improves neuronal transmission and nerve repair mechanisms by affecting acetylcholine production in the central nervous system. Carnitine supplementation has been shown to significantly increase dopamine levels in the cortex, hippocampus and striatum of the rat brain (Juliet et al. 2003).

To our knowledge, there are no reports of ALC triggering any psychiatric disorder in a person without a history of psychiatric illness. We present the first case of ALC-induced psychosis in an adolescent who had no previous psychiatric complaints.

CASE

A 17-year-old female patient was brought to the emergency department by her family with complaints of "seeing things that don't exist, thinking that everyone will harm her, talking nonsense, and aggression". During the examination, she became aggressive, indicating that "she can see the demons inside people, the souls of their relatives are replaced by evil human spirits, they did all this to harm her and enter her body, every question asked stressed her out", and she didn't adapt to the psychiatric examination. She indicated that "After drinking a supplement she bought from the grocery store 3 days ago, she was given this ability and now she is the most intelligent soul, so she can read our brains through our eyes".

According to her family, the patient, who had a calm temperament until 3 days ago, was a very popular person in her social life, and was a successful student in her classes. An adaptable young girl without any psychiatric problems, had sudden onset of anger tantrums, aggression and swearing three days ago when she returned from school.

After the antipsychotic (haloperidol) injection, she calmed down a bit.

Her consciousness was clear and orientation was preserved. Her attitude at the meeting was hostile and defensive. The affect was anxious, irritable, and angry. Her intelligence gave the impression of normal. It has been determined that there are visual and auditory

hallucinations of egodystonic character, delusions of influence and being affected in thought content, thought insertion, telepathy and intense thought preoccupations with meditation. Her involuntary attention increased. Her eyes were suspicious and angry; movements showed signs of motor tension. Her speaking rate was slightly increased and her tone was very high.

There was no feature in her family history.

Investigations were planned in order to exclude other possible general medical conditions in the patient. No pathology was detected in brain MRI. Neurological examination, hemogram and biochemical tests were also normal.

Positive and Negative Symptoms Scale applied to the patient; Positive symptoms: 34; negative symptoms scale: 20; General Psychopathology scale: 47 points. CGI (Clinical global follow-up scale) was evaluated as 5 points.

According to DSM-5, with the diagnosis of "psychotic disorder caused by the substance/drug (another substance)", it was decided to transfer to the inpatient service, but her family didn't accept it. Oral treatment of haloperidol and biperiden was started.

The patient was brought to the outpatient clinic of child and adolescent psychiatry one week later by her family, although she was called one day later. After the antipsychotic injection, she slept until the next morning, her symptoms began to improve rapidly, and her delusions decreased significantly on the second day of the treatment; it was learned that the patient's aggressive attitudes disappeared from the third day of the treatment, and she didn't have any significant complaints from the sixth day of the treatment. Antipsychotic was tapered off and discontinued, as the patient wanted to stop taking the medication in the follow-up examination. The mental status examination was evaluated as completely normal in the outpatient clinic control one week after the drug treatment was discontinued and in the following period.

DISCUSSIONS

The patient, who took the dietary supplement containing 3000 mg of ALC, suddenly became psychotic 24 hours after drinking the second bottle. When the supplement was examined, this liquid, which was consu-

med as 1 bottle a day, especially used by adolescents to lose weight, was used more than recommended.

We believe that ALC is responsible for the psychosis because the patient's psychosis started suddenly and didn't recur after the discontinuation of ALC, the only foreign substance used in that process. The absence of a previous psychiatric history of the patient and her family and the complete disappearance of psychotic symptoms despite not continuing antipsychotic treatment are other reasons supporting our opinion.

In the literature, no case of psychosis caused by carnitine has been found in a healthy person. However, a case of carnitine-induced Kleine Levis Syndrome in a patient diagnosed with bipolar affective disorder were reported (Yaylacı et al. 2018).

It has been reported that 61.2% of the population use dietary supplements, but very few of them start using it with the advice of a doctor (Atalay & Erge 2018). When the content of many supplements, which are claimed to be herbal, is examined, except for the substances stated in its content; It has been shown in studies that a wide variety of drug active substances such as diuretics, laxatives, thyroid hormones, caffeine, sympathomimetics and sibutramine can be found (Khazan et al. 2013).

After the patient's application, we notified the Public Health Department and the Provincial Directorate of Agriculture and Forestry and the dietary supplementation was examined. It was indicated that no sibutramine, amphetamine or similar sympathomimetic, laxative and diuretic substance was detected in its content.

After laboratory examination of the supplement content, it was thought that the only substance that could cause psychosis in this case was ALC.

CONCLUSION

Increasing use of dietary supplements and omitting side effects are becoming an important public health

problem. It's important to make necessary warnings and awareness-raising studies about the preparations available in the market under the name of such nutritional supplements to their dependent populations due to the biopsychosocial approach, especially by Family Doctors, who are the first point of contact with the public in terms of health, in primary care. In addition, we think that the inspection and control of these products should be carried out regularly under the coordination of the Ministry of Agriculture and Forestry and the Ministry of Health.

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Contribution of individual authors:

All authors made equal contribution to this case report in terms of drafting, writing, obtaining the patient's consent, revising the paper and approved the final version of manuscript.

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