ABSTRACT

BACKGROUND AND OBJECTIVES: Epilepsy and autism spectrum disorder (ASD) are diseases with neuropsychiatric impairment, which, depending on their clinical presentation, can be treated with medical cannabis. The objective of this work is to present a brief review of the literature on the use of cannabinoids (CNB) in the management of ASD and epilepsy.

CONTENTS: The elaboration of this review was made from search and selection. Searches were carried out in the following databases: LILACS, Medline via Pubmed, Scielo and Cochrane Library, published from January 2010 to December 2022.

CONCLUSION: The use of CNB, both for epilepsy and for ASD, has been shown to be safe, however actual effectiveness has yet to be proven.

Keywords: Autism, Cannabidiol, Cannabis, Epilepsy.

INTRODUCTION

In recent years, the use of cannabinoids in children with epilepsy and autism has expanded in Brazil and worldwide. The present study will address the use of cannabinoids in developing brains, according to the severity of symptoms. It is known that drug-resistant epilepsy has not only epileptic seizures as symptoms, but also its comorbidities, which are cognitive and behavioral disorders. In autism spectrum disorder (ASD), the symptoms of irritability, anxiety, repetitive and restrictive behavior, and self and hetero-aggressiveness may be disconcerting, not only for patients, but also for their family and social companions.

Despite pharmacological advances, epilepsy remains refractory in up to 36% of cases, regardless of mono- or polytherapy treatments and the insertion of new drugs. As for ASD, the most commonly prescribed drugs are risperidone and aripiprazole, which are antipsychotics that have considerable effects, such as weight gain and metabolic syndrome, and that may be ineffective in a considerable number of patients for controlling symptoms. The present study’s objective was to present a brief review on the use of CNB in epilepsy and ASD.

CONTENTS

The preparation of this review was based on search and selection. The following databases were searched: LILACS, Medline via Pubmed, Scielo and Cochrane Library using the descriptors: (“Cannabidiol” OR “Cannabis”) AND “Epilepsy” AND (“Treatment” OR “Therapeutics”) AND Autism
Cannabinoids, a non-psychoactive derivative of cannabis, has demonstrated its efficacy and safety, and has been approved by the Food and Drug Administration (FDA) for the treatment of some epileptic syndromes, such as Dravet syndrome, Lennox-Gastaut syndrome, and tuberous sclerosis complex. The most common adverse effects, which usually occur early in the treatment, are drowsiness, nausea, vomiting, diarrhea, and change in appetite. A transient increase in liver enzymes may occur, especially when the use is concomitant with valproic acid derivatives, as well as thrombocytopenia. Another effect observed was an increase in the serum dosage of clobazam and other benzodiazepines, with potentiation of their adverse effects, such as drowsiness and increased secretion, which normalized after the reduction of clobazam.

Therefore, it is suggested that the control of serum dosage of anti-crisis drugs, blood count, liver enzyme and bilirubin dosage be performed before and during treatment with CBN. Regarding the choice of product, it should be emphasized that full spectrum formulations seem to be more effective than isolated cannabis components, due to the entourage effect, but there is still no full spectrum product approved by the FDA for pediatric use. Thus, the management of CBN in the pediatric age group has to be different from that of adults, due to the deleterious effects of THC on the developing brain. The choice should be made considering the peculiarities of each case, exposing the family about the risks versus benefits of each presentation.

In ASD, non-pharmacological treatment, which includes parents training together with a multidisciplinary approach by specialists, is the method of choice. However, many patients require drugs in order to control signs and symptoms such as aggressiveness, irritability, restrictive and repetitive behavior, anxiety, and sleep disorders. So far, for ASD, the scientific evidence for pharmacological treatment converges on managing irritability with risperidone and aripiprazole; and the use of methylphenidate, atomoxetine, and guanfacine for attention deficit hyperactivity disorder, as well as melatonin for sleep disorders.

However, many cases of ASD are refractory, regardless of therapies and drug use. Phytocannabinoids seem to occupy a prominent place, according to some research, but more robust studies are still needed in order to prove their real effectiveness.

There are several observational studies on the use of cannabinoids in ASD. It is worth mentioning the research developed by the ad hoc Task Force of the ILAE Commission on Therapeutic Strategies. Epilepsia. 2010;51(6):1069-77. Erratum in: Epilepsia. 2010;51(9):1922.

In pharmacoresistant epilepsy, cannabidiol is already FDA approved for Dravet, Lennox-Gastaut syndromes and in tuberous sclerosis complex. Epilepsy patients taking clobazam and valproate should receive special attention when taking cannabindoid derivatives concomitantly due to pharmacological interactions.

In ASD, cannabinoid derivatives have demonstrated efficacy in controlling disruptive behavior and irritability. However, to date, there is no FDA-approved product for their regular use. Although more scientific evidence is needed, the use of CBN, both for epilepsy and ASD, has been shown to be generally safe and effective and an alternative option for those patients with poor response to traditional treatment modalities.

REFERENCES


