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Palmitoylethanolamide attenuates PTZ-induced seizures through CB1 and CB2 receptors.

Aghaei I[1], Rostampour M[2], Shabani M[3], Naderi N[4], Motamedi F[1], Babaei P[5], Khakpour-Taleghani B[5].

Author information

Abstract

Epilepsy is one of the most common neurologic disorders. Though there are effective medications available to reduce the symptoms of the disease, their side effects have limited their usage. Palmitoylethanolamide (PEA) has been shown to attenuate seizure in different animal models. The objective of the current study was to evaluate the role of CB1 and CB2 receptors in this attenuation. Male wistar rats were used for the current experiment. PTZ was injected to induce chemical kindling in animals. After verification of kindling in animals, treatment was performed with PEA, AM251 and AM630 in different groups. Latency to induce seizure, seizure stages and latency and duration of fifth stage of seizure was recorded for each animal. Injection of PTZ led to seizure in the animals. Pretreatment with PEA increased the latency to initiate seizures and reduced the duration of seizure. Pretreatment with different dosages of AM251 had contrary effects so that at lower doses they increased the seizure in animals but at higher doses led to the attenuation of seizure. AM630 increased seizures in a dose dependent manner. Combination of the antagonists increased the seizure parameters and attenuated the effect of PEA on seizure. PEA attenuated the PTZ-induced seizures and pretreatment with CB1 and CB2 antagonists diminished this effect of PEA, but still PEA was effective, which might be attributed to the contribution of other receptors in PEA anti-epileptic properties. Findings of the current study implied that endocannabinoid signaling pathway might have an important role in the effects of PEA.

KEYWORDS: CB1 and CB2 receptors; PEA; PTZ; Seizure

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