Abstract

In mice, running, clonic and tonic convulsions and lethality were assessed following transcorneal (electroshock) current or convulsant drugs, each administered alone and after cannabidiol (CBD) pretreatment. CBD prevented tonic convulsions caused by a convulsant current (CC) 99.99, and by the convulsant dose (CD) 99.99 values of gamma-aminobutyric acid (GABA) inhibitors, 3-mercaptopropionic acid (3MPA), picrotoxin (PIC), isonicotinic acid hydrazine (INH), pentylenetetrazol (PTZ) and bicuculline (BIC). Rankorder potencies, based on the antitonic ED50 of CBD, were: 3MPA greater than PIC = current = PTZ = BIC. Further, CBD prevented 3MPA-induced lethality, but failed to prevent the occurrence of the other behavioral endpoints of the above treatments. CBD also failed to prevent convulsions and lethality caused by the CD 99.99 of strychnine, a glycine antagonist. The differential effects of CBD suggest that the cannabinoid acts to inhibit seizure spread in the CNS by an action on GABA, but not glycine, mechanisms.

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