Neurobehavioral effects of cannabidiol in healthy subjects and potential therapeutic mechanisms for alcohol use disorders: A systematic review

Authors:

TRISTAN HURZELER[1,2], WARREN LOGGE[1,2], KIRSTEN MORLEY[2].

[1]Edith Collins Centre (Translational Research in Alcohol Drugs and Toxicology), Sydney Local Health District, Sydney, Australia, [2]Discipline of Addiction Medicine, University of Sydney, Australia

tristan.hurzeler@sydney.edu.au

Abstract

Introduction: Previous research suggests that cannabidiol (CBD) may have therapeutic potential for the management of alcohol use disorder (AUD). However, very limited clinical research has been conducted in populations experiencing AUD and the neurobiological mechanisms underlying the potential therapeutic properties of CBD in treating AUD remains elusive.

Aim: We conducted a systematic review of neuroimaging literature on the effects of CBD on the brain of healthy participants and potential neurobiological mechanisms by which CBD may ameliorate AUD pathology are identified.

Methods: This review was conducted according to the PRISMA guidelines and considered articles published in English from all countries. Terms relating to cannabidiol, and neuroimaging were used to search original research published in peer-reviewed journals. Only human studies with a healthy participant group were included.

Results: Of the 767 articles identified from our search strategy, 15 eligible studies met the criteria to be reviewed. The literature presented in this review suggests that CBD modulates γ-Aminobutyric acid and glutamate signalling in the basal ganglia and dorso-medial prefrontal cortex. Further, CBD regulates activity in regions associated with mesocorticolimbic reward pathways, salience, limbic and fronto-striatal networks which are implicated in reward anticipation, emotion regulation, salience processing, and executive functioning.

Conclusion: CBD modulates brain regions, neurotransmitter systems and functional connections implicated in AUD, further supporting CBDs therapeutic potential for AUD.

Disclosure of interest Statement:
The authors declare that they have no known competing financial interests of personal relationships that could have appeared to influence the work reported in this paper.