

MEETING ABSTRACT

Open Access

Evaluating the effect of Tetrahydrocannabinol ($\Delta 9$ -THC) extracted from *Cannabis sativa* plant on spatial memory consolidation in rats

Saeedeh Ebrhimpour^{1*}, Morteza Kafee¹, Maryam Tehraniour¹, Morteza Behnamrasouli²

From 1st International Congress on Neurobiology and Clinical Psychopharmacology and European Psychiatric Association Conference on Treatment Guidance
Thessaloniki, Greece. 19-22 November 2009

Background

As the point of physiology, memories form changes in the conducting message in the neural webs. These changes cause the formation of long-term potentiation. $\Delta 9$ -THC is a psychotropic component of *Cannabis sativa* plant. Studies show this matter can bind Cannabinoid receptor in CA1 area of Hippocamp. Thus the aim of this study is to evaluate the effect of aqua extraction *Cannabis sativa* seed on spatial memory consolidation in rats.

Materials and methods

A number of 40 male wistar rats (3-4 month, 320-260 g) were completely divided into 4 experimental groups and control group. *Cannabis sativa* seed was extracted with Soxhlet apparatus. To test spatial memory, Morris water mazemaze (7 days, 4 trails) was used.

Experimental groups with 50 mg.kg-1, 100 mg.kg-1, 150 mg.kg -1,210 mg.kg-1 were injected in the peritoneal (IP) and after one hour of injection spatial memory was scaled.

Results

The result show that experimental groups (50 mg.kg-1,100 mg.kg-1,150 mg.kg-1 doses), for learning time have significant level eduction in the comparison of control group ($p < 0.05$), but experimental group with 210 mg.kg-1 dose has not significant level in the comparison of control group ($p < 0.05$).

Conclusions

We demonstrate tetrahydrocannabinol can change brain function as learning and memory processes and probably was done with Depolarization-Induced Suppression of excitatory (DSE) mechanism in the CA1 area of Hippocamp that with neurotransmitter regulation cause europlasticity.

Acknowledgements

The authors are grateful to Islamic Azad University of Mashhad, Iran for support.

Author details

¹Department of Biology, Faculty of Science, Islamic Azad University, Mashhad Branch, Mashhad, Iran. ²Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran.

Published: 22 April 2010

References

1. Allyn C: Efficacy in CB1 receptor-mediated signal transduction. *Br Pharmacol* 2004, **142**(8):1209-1218.
2. Hooge R, DeDeyn PP: Applications of the Morris water maze in the study of learning and memory. *Brain. Rev* 2001, **36**:60-90.
3. Sarne Y, Keren O: Are cannabinoid drugs neurotoxic or neuroprotective. *medical hypothesis* 2004, **187**-192.
4. Jonathan LC: Memory reconsolidation mediates the strengthening of memories by additional learning. *Nature neuroscience* 2008, **11**:1264-1266.

doi:10.1186/1744-859X-9-S1-S128

Cite this article as: Ebrhimpour et al.: Evaluating the effect of Tetrahydrocannabinol ($\Delta 9$ -THC) extracted from *Cannabis sativa* plant on spatial memory consolidation in rats. *Annals of General Psychiatry* 2010 **9**(Suppl 1):S128.

¹Department of Biology, Faculty of Science, Islamic Azad University, Mashhad Branch, Mashhad, Iran