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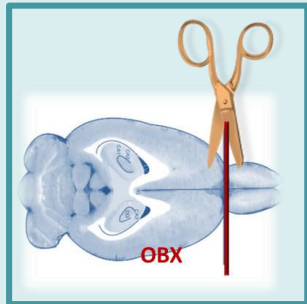
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Background and purpose

Chlorogenic acid (CGA), gallic acid (GA) and ferulic acid (FA) are abundant biologically active polyphenols in human diet. CGA and GA have been shown to possess anxiolytic-like effects in experimental animals [1,2].



Olfactory bulbectomy (OB) in rats is associated with a variety of behavioral abnormalities and serves as a model of depression with comorbid anxiety, agitation, sexual and cognitive dysfunction [3].

The aim of this study was to investigate the effects of CGA, GA and FA on anxiety in rats subjected to OB.

Methods

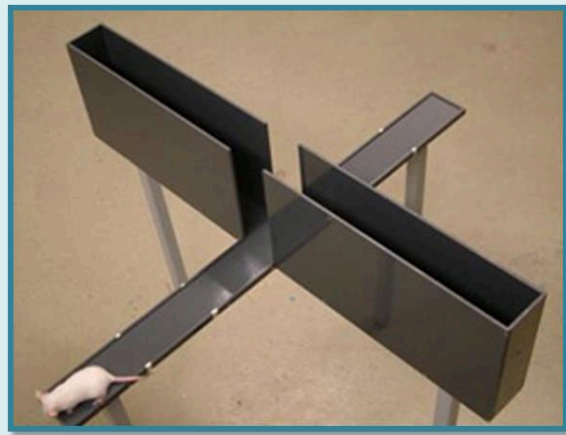
Animals: male Wistar rats (200-220 g)

Experimental substances:

CGA, GA and FA purchased from Sigma Aldrich (Germany)

Experimental design:

- ❖ 5 groups (n=6):
 - Sham operated (SO)
 - OB
 - OB+CGA
 - OB+GA
 - OB+FA



- ❖ Bilateral OB according to the method of Kelly et al. [4].

Treatment: 14 days

Distilled water 10 ml/kg – groups SO and OB,

CGA 20 mg/kg as a 10 ml/kg solution – group OB+CGA

GA 20 mg/kg as a 10 ml/kg solution – group OB+GA

FA 20 mg/kg as a 10 ml/kg solution – group OB+FA

Elevated plus maze (EPM)

Behaviors recorded:

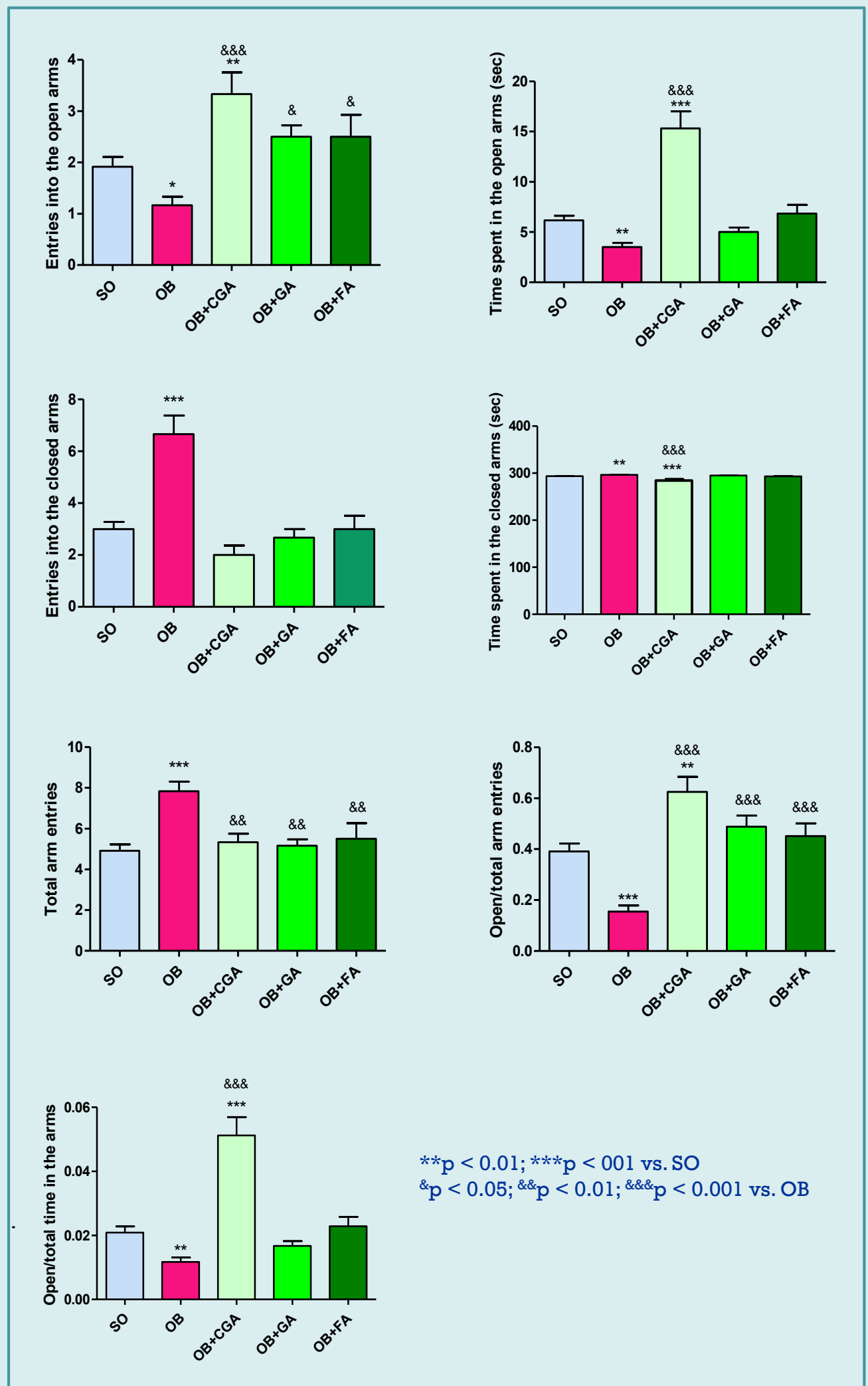
- ❖ Number of entries into the open arms of the maze
- ❖ Time spent in the open arms
- ❖ Number of entries into the closed arms of the maze
- ❖ Time spent in the closed arms
- ❖ Total number of arm entries
- ❖ The ratio: number of entries into the open arms vs. total number of entries
- ❖ The ratio: open arms time vs. total time in the arms

References

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- [3] Wang, D., Noda, Y., Tsunekawa, H., Zhou, Y., Miyazaki, M., Senzaki, K., Nabeshima, T., 2007. Behavioural and neurochemical features of olfactory bulbectomized rats resembling depression with comorbid anxiety. *Behav Brain Res* 178(2), 262-273.
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Statistical analysis: One-way ANOVA, GraphPad Prism statistical software

Results



Conclusion

CGA, GA and FA prevented the development of the state of hyperactivity and anxiety in olfactory bulbectomized rats. Most pronounced was the effect of CGA.

There is no potential conflict of interests.