Effect of Ethosuximide Treatment During Neural Development on Adult Behavior

Alexa Gracias[1,2], Viktoria Usova[1,2], Mark Beenhakker[1]

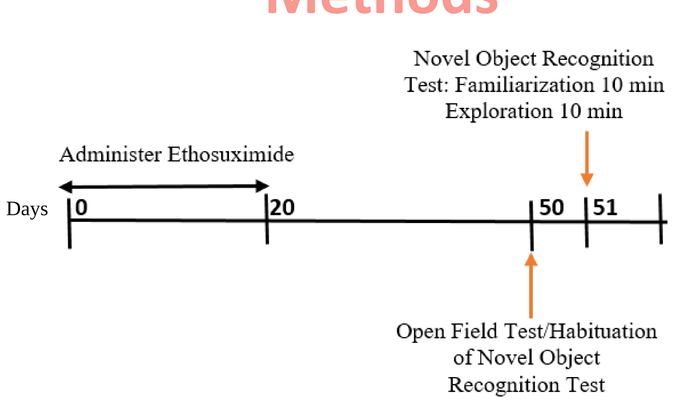
Pharmacology Department[1] and Neuroscience Undergraduate Program[2], University of Virginia, Charlottesville, VA

Introduction

- Childhood Absence Epilepsy is the most common pediatric epilepsy
- Current treatment is administered during a crucial period for neural development
- Effect of treatment on normal neural development is unknown
- Among common treatments, ethosuximide is most effective with fewer side effects

Aim: Determine whether chronic ethosuximide treatment during neural development influences adult behavior.

Methods



Intraperitoneal Injections

- Sprague-Dawley rats, p10-p30
- 200mg/kg Ethosuximide or Saline (control)
- n=10 per treatment group

Open Field

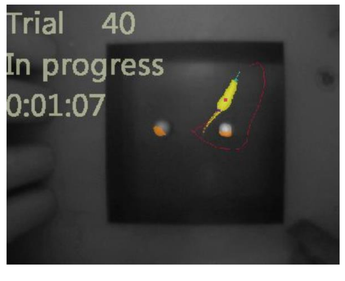
- 10 min habituation

Novel Object Recognition

- 10 min familiarization
- 10 min exploration

Arena: 91cmX91cmX35cm

Ethovision tracking software



Results

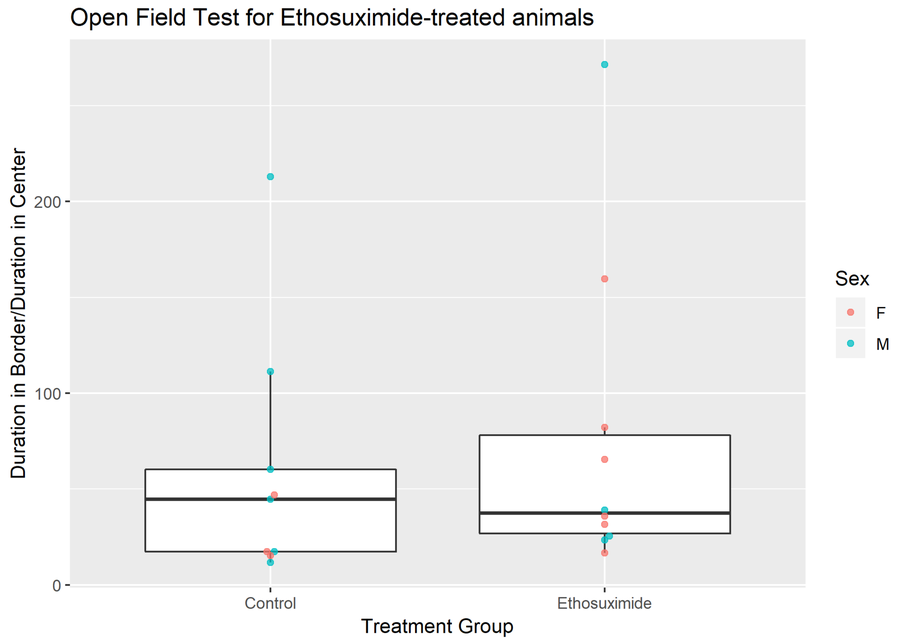


Figure 1: Ratio of duration in border and duration in center between treatment groups. Wilcoxon rank sum test, p=0.549.

Figure 2: Discrimination Index between treatment groups and trial type. Two way ANOVA: Trial Type, p= 0.00529 , Treatment, p=0.69606

Conclusions

Open Field

- No significant difference between exploration for in border and in center between treatment groups

Novel Object Recognition

- Significant difference between the familiar and novel object trials when treatment group is accounted for
- No significant difference in discrimination index between control and ethosuximide treatment

Limitations

- Small sample size
- Tracking software difficult to work with

Future Research

- Effect of ethosuximide treatment on social interaction behavior
- Effect of ethosuximide treatment on EEG sleep analysis

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