Electroconvulsive Threshold Testing JAX_ECT_001

Purpose

Electroconvulsive threshold testing is used to understand mechanisms that underlie susceptibility to epilepsy. An electrical current is used to induce minimal clonic (forebrain), maximal tonic (hindbrain/brainstem) and psychomotor (limbic) seizures.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 17
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

Ugo Basile Electro Convulsive Therapy unit

0.5% Tetracaine Hydrochloride

Procedure

Animal housing and handling:

1. Transport all scheduled mice from mouse room FGB4435 on rolling cart to ECT room 4435C.
2. Using the following settings: pulse frequency 299 Hz, width 1.6 ms and duration 0.2 s. And adjust the current for that day/mouse test (0.5-20mA).
3. The mouse to be tested is identified by test code and mouse ID/ear tag and is restrained gently in one hand.
4. One drop of Tetracaine solution is applied to each eye.
5. Place electrode in contact with the solution.
6. Press foot pedal to administer electric shock.
    a. Testers should take care that mice are properly restrained and full contact between the mouse's eye and the ECT prongs is maintained in order to prevent electric arcing. The equipment is designed to inform the tester of unintentional arcing with a loud warning.
7. Release mouse onto desk and observe for ~1min and score actions based on scoring below.
    a. 0 = walks away
    b. 1 = brief stun only, then walks away

    c. 2 = very brief jaw, forelimb clonus, lasting < 1sec
    d. 3 = prolonged jaw, forelimb clonus, ventral or dorsal neck flexion, loss of posture lasting several seconds
    e. 4 = tonic extension of forelimbs (90 degree to torso)
    f. 5 = tonic extension of hindlimbs (90 degree to torso)
8. Score is then recorded into LIMS system.
9. Before placing mice in clean wean box or home cage ensure that animal is moving and breathing normally.
    a. If breathing stops an attempt can be made to revive it by applying gentle pressure to the chest and gently blowing on the mouse's face.
10. Wipe table top and electrodes with 70% ethanol.
11. Return all mice to mouse room FGB4435.
12. Repeat testing next day as needed (determined by protocol).

Parameters and Metadata

mA threshold inducing clonic seizure JAX_ECT_011_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mA

Experimenter ID JAX_ECT_012_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Secondary Experimenter ID JAX_ECT_013_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Equipment ID JAX_ECT_014_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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Equipment manufacturer JAX_ECT_015_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Ugo Basile,

Equipment model JAX_ECT_016_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: ECT unit 7801, ECT unit 7801 (#25138), ECT unit 7801 (#23745),

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Comment JAX_ECT_037_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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