SOP 410.02 – Humane Endpoints

1. PURPOSE

This Standard Operating Procedure (SOP) provides guidelines on humane intervention points for rodent research models that involve a progressive ascending paralysis.

2. RESPONSIBILITY

Principal investigator (PI) and their research staff, veterinary care staff, Facility Animal Care Committee (FACC).

3. CONSIDERATIONS

3.1. Rodent models that involve progressive ascending paralysis include experimental autoimmune encephalomyelitis (EAE) and other models of neurodegeneration such as models of amyotrophic lateral sclerosis (ALS).

3.2. Paralysis typically progresses from the tail to the hind limbs, then to the fore limbs and is occasionally followed by urinary incontinence.

3.3. Scoring mechanisms for disease progression are not only part of the experimental data gathering but are useful tools for determining humane intervention points and monitoring frequency.

3.4. Body weight and body condition scoring should be evaluated in conjunction to the paralysis scoring.

4. PROCEDURES

4.1. Paralysis scoring:

<table>
<thead>
<tr>
<th>SCORE</th>
<th>CLINICAL SIGNS</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>No disease, no obvious changes in motor function.</td>
</tr>
<tr>
<td>1</td>
<td>Lack of tail tone (flaccid tail) but normal gait and ability to climb.</td>
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<tr>
<td>2</td>
<td>Limp tail and mild hind limb weakness. May have difficulty grasping or climbing up from underside of a cage cover grid, may misstep on the top of a cage cover. Animals may appear ataxic or clumsy, balance is poor. Animals exhibit poor righting reflex.</td>
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<tr>
<td>3</td>
<td>Severe hind limb weakness/partial hind limb paralysis. May drag hind limbs. The animal is not able to hang on underside of a cage cover, but still moves spontaneously.</td>
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<tr>
<td>4</td>
<td>Paralysis of one or both hind limb and little or no spontaneous movement. Animal is unable to right itself.</td>
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<tr>
<td>5</td>
<td>Quadriplegia or moribund stage</td>
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</tbody>
</table>
4.2. Recommended intervention points:
   4.2.1. Weight loss exceeding 20% of baseline bodyweight.
   4.2.2. Body condition score (BCS) less than 2.
   4.2.3. Score of 0, 1 or 2: No treatment required.
   4.2.4. Score of 3 or 4: Provide wet food at the bottom of the cage and ready-to-use nesting material. Consider using a soft bedding, e.g., Envigo Teklad Diamond Soft cellulose bedding.
   4.2.5. Score of 4: Euthanasia if no improvement is observed within 2-3 days.
   4.2.6. Score of 5: Euthanasia.

4.3. Frequency of monitoring:
   4.3.1. Animals should be observed daily.
   4.3.2. Score of 0, 1 or 2: scoring and bodyweights weekly.
   4.3.3. Score of 3: scoring and bodyweights twice weekly.
   4.3.4. Score of 4: scoring and bodyweights daily.

4.4. Recordkeeping:
   4.4.1. Monitoring is the responsibility of the PI and research staff.
   4.4.2. A Humane Intervention Monitoring Log may be requested by the Facility Animal Care Committee.
   4.4.3. Log all monitoring activities, observations and paralysis scores.

5. REFERENCES
