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Veterinary Medical Treatment of Rodents

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NOTE: All rodents with skin lesions, eye lesions, rectal prolapses or fight wounds must be treated or euthanized regardless of the nature or duration of the study or breeding program.

NOTE: Before initiating treatment or euthanizing, contact the Principal Investigator (PI) to ensure that the selected treatment is not in conflict with any aspect of the study. If the PI cannot be reached immediately, contact LAM, x 5195 or 7538.

Cage Checking

The following steps are essential prior to any routine cage changing:

1. Check all cages in all assigned rooms for floods and obviously sick animals.

2. Respond immediately to sick, injured, dehydrated animals and flooded cages as per SOP 2.002 - *Animal Health Evaluation.*

3. Administer all A.M. medications to animals on treatment.

Watch Cards

- Animal care personnel are responsible and accountable for flagging all sick animals whether or not the animals are on study.
- The caretaker must write the observed health problem, date, and their initials on the watch card as per SOP 2.002 and place it on the cage.
- The technician must follow up by evaluating the animal and providing a written comment on the watch card regarding the condition and disposition of the animal(s) in the cage. The technician following up on the animal also needs to write their initials and the date of evaluation on the card.
- Periodic technical follow-ups will be necessary for some conditions, i.e., tumors or other debilitating conditions.

Animal Health Reports

- Initial animal health reports (AHR) and follow-up reports should be faxed to LAM in a timely fashion.
- The technician must either fax the AHR or ensure that the animal caretaker, facility supervisor or manager fax the AHR.
- To provide continuity, follow-up information should be dated and written at the bottom of the original form.
- If you cannot fax the original, complete a new form with the follow-up added to the bottom and indicate on the form that this is a follow-up.

Wet Feed

- Wet feed should be provided to all animals that are debilitated for any reason.
- In addition to wet feed, a dish of water should be given to animals that are moderately to severely dehydrated.
- Examples of animals that may need extra support include:
    - Weanlings
    - Mice with tumors

Wet Feed, con't.

- Post-surgical animals
- Ascites animals
- Animals receiving therapeutic agents/drugs
- Neurologically impaired animals
- Animals with phenotypes that may hinder their ability to feed

- Facility personnel should plan ahead so that wet feed is always available in the facility.

- Remember, trans gel has no nutritive value and is not a substitute for wet feed.

Skin Lesions

- Apply non-antibiotic topical medications twice daily (weekends and holidays included, if possible) for a minimum of 7-10 days, until healing is complete. The skin must appear normal to discontinue treatment. Redness, scabs or any lesion other than simple hair loss indicate that healing is not complete and treatment must be continued.

- Place a watch card on the cage of the affected animal.

- Beginning with the first treatment, write on the back of the card the date, am or pm, and your initials.

- Complete and fax an animal health report to LAM, x6068. Be certain to complete all blanks on the form, including the complete name of the medication, (ie. Aveeno Anti-Itch or Aveeno Diaper Rash), and other steps taken that are related to treatment, (ie. separated mouse, removed feeder, removed ear tag, gray bedding, etc.).

- A veterinary consult can be requested at any time. In Section D of the Animal Health Report form, check ✓ *Veterinary Consult requested* before faxing the form. If you are not contacted by the Veterinary staff within 15 minutes, call LAM.

- If you do not see the condition beginning to improve after 5-7 days of treatment, you should change the medication to another non-antibiotic topical product. Update the AHR and fax it to LAM. If desired, LAM can recommend a different medication.

- LAM maintains a pharmacy of medications for all animal facilities. Standard treatments will be dispensed upon receipt of a completed LAM

Skin Lesions, con't.

Pharmacy Order Form. LAM also stocks a limited supply of alternative medications that are not listed on the Pharmacy Order Form.

- Facial lesions - those involving the skin of the head from just in front of the ears to the muzzle, jaws and chin - should be treated with an antibiotic ophthalmic formula medication only. For muzzle lesions, remove the feeder and provide feed on the cage floor. Prominent swelling of the muzzle is indicative of an abscess, or pocket of infection. Euthanasia is recommended for rodents with abscesses on their muzzles or other places on their bodies.

- Dermatitis (not on the face) in rodents with normal immune systems should be treated with a non-antibiotic topical medication, (see Pharmacy Order Form). Since dermatitis in rodents has a variety of causes, finding an effective treatment may be a trial and error process. Chlorhexiderm, Aveeno Anti-itch or Aveeno Diaper Rash are effective in many cases of mild to moderate dermatitis; diphenhydramine-based formulations (Benedryl, CVS anti-itch cream or gel) may also be effective. If two trials of non-antibiotic treatments don't produce some improvement, then an antibiotic may be tried.

- Ears: Remove ear tags before beginning treatment. Medication on the ears must be applied carefully and in small amounts to prevent introduction into the eyes.

- Separate fighting rodents before starting treatment.

- Bite Wounds: Mild to moderate bite wounds - including those on the tail - and wounds or traumatic injuries in rodents with normal immune systems - use Chlorhexiderm to cleanse the wounds and aid in healing.

- Severe bite wounds, severe traumatic injuries, and all wounds in rodents without normal immune systems, like nudes and SCIDs, should be treated with an antibiotic topical ointment. To aid in healing, cleanse severe wounds with Chlorhexiderm before applying antibiotic ointment. Refer to *Severe Tail Bite Wounds* and *Necrotic Tails* (below) for instructions on treating severe tail bite wounds and necrotic tails.

Eye Lesions

- Eye lesions in rodents may include those resulting from traumatic eye bleeds, (mice only), self-trauma, (rodent scratching skin lesion near eye), or any of a number of allergic conditions. Allergies affecting the eyes

Eye Lesions, con't.

appear as redness and tearing of both eyes. Eye conditions are painful and likely to lead to secondary infection. If left untreated, the eye can be lost.

- Treatment for eye lesions is limited to an antibiotic ophthalmic ointment applied to the affected eye(s) twice daily until the eye(s) appears normal. Place a watch card on the cage of the affected animal.

- Beginning with the first treatment, write on the back of the card the date, am or pm, and your initials.

- Complete and fax an animal health report to LAM, x6068. Complete all blanks on the form, including the full name of the medication and other steps taken that are related to treatment.

- Gray bedding, (Cell-U-Sorb), produces less dust and is less irritating to the eyes and skin than other types of bedding. Be sure to include the addition of gray bedding on the animal health report form.

- If you do not see the condition beginning to improve after 5-7 days of treatment, contact LAM. LAM can recommend other treatments.

Severe Tail Bite Wounds

1. Separate the bully from the victim(s) so the biting does not continue. The sooner you can begin treatment, the better.

2. Gather the following supplies:

    - Betadine solution or Chlorhexiderm flush
    - 2”x2” or 3”x3” sterile gauze pads
    - Triple Antibiotic Ointment with Pain Reliever
    - Paper Towels

3. Procedure:

    NOTE: Treatment is twice daily for 7-10 days (or until completely healed):

    a. Restrain the rodent and hold over several paper towel layers (used for absorbing the liquids).

Severe Tail Bite Wounds, con't.

b. Soak a gauze pad in Betadine and gently swab the tail thoroughly to cleanse the wounds.

c. Gently dab dry the tail with clean gauze.

d. Apply Triple Antibiotic with Pain Relief to the wounds.

e. Discard gauze pads after use - do not use the same pad(s) on the next rodent.

4. Depending on the severity of the wounds, LAM may recommend an antimicrobial in the drinking water. Do not administer antibiotics in the water without first consulting with the veterinary staff. Notify LAM with an Animal Health Report.

Necrotic Tails

Blackened tissue is dead tissue and needs to be surgically removed as soon as possible. In addition to the supplies listed above you will need:

- Anesthesia
- Electrocautery (if you do not have a unit available, we can direct you to disposable ones)
- Styptic Powder, (Kwikstop), (alternative to electrocautery)
- Scalpel with new sterile blade

Procedure:

1. Place anesthetized rodent on several thicknesses of paper towel.

2. Soak a gauze pad in Betadine and gently swab the tail thoroughly.

3. Amputate the necrotic portion of the tail by making a clean slice into healthy tissue above the necrosis.

4. Cauterize or apply styptic to the tail stump to stop the bleeding.

5. Allow the rodent to recover in a warm, draft-free place, observing frequently.

6. Treat twice daily for 7-10 days (or until completely healed) by the following method:

Necrotic Tails, con't.

a. Gently cleaning the end of the tail with Betadine as described above. Be careful not to remove the scab, as healing is occurring underneath.

b. Apply Triple Antibiotic with Pain Reliever to the tail stump.

NOTE: LAM may recommend an antimicrobial in the drinking water. Do not administer antibiotics in the water without first consulting with the veterinary staff. Notify LAM with an Animal Health Report Form.

Rectal Prolapse

Mild:

- Barely noticeable (≤1mm) of moist, inflamed tissue protruding from the anus

Moderate:

- ≤3mm of moist, inflamed tissue protruding from the anus
- No active bleeding
- Mouse is otherwise healthy and normal

Severe:

- Animal will exhibit one or more of these clinical signs:
- ≥3mm moist, inflamed tissue protruding from the anus
- Active bleeding
- Dried blood
- Dry tissue

<u>Treatment for Mild to Moderate Prolapse:</u>

- Give "Wet Feed"
- Bed cage with Cell-U-Sorb ("grey bedding")
- Treatment: Hemorrhoid Cream with Pramoxine
- Start Rectal Prolapse Log (refer to attached)
- FAX an Animal Health Report to LAM within 24 hours
- Send follow-up Animal Health Report and Prolapse Log to LAM every 5-7 days

Rectal Prolapse, con't.

- PI should consider endpoint
- If the animal is a nursing female, allow her to finish with the litter. Do not re-breed
- LAM is available for consultation on a case-by-case basis

Steps to Take for Severe Prolapse:

NOTE: Euthanasia is required

1. Contact PI and LAM immediately
2. Treat immediately using Hemorrhoid Cream with Pramoxine to give the animal some relief until euthanatizing
3. If the animal is a nursing female, all efforts should be made to foster the litter immediately

Flooded Cages

- All racks should be evaluated first thing in the morning and at the end of the day for cage flooding.
- Change wet cages and hand-dry animals as soon as found.
- Place the cage on an insulated heating pad or warming tray.
- Monitor every fifteen minutes.
- See below for animals wetted by medicated water.

Cages Flooded with Medicated Water:

Mice that are wet from medicated water from a leaky water bottle need to have the medication removed from their fur.
Medication that is allowed to dry will stiffen the mice's fur and *they cannot remove it themselves.*

Flooded Cages, con't.

IMPORTANT NOTE: Pups with medication in their fur will be ignored by their parents because the pups smell like medication - mother mice will not clean the pups and will not let them nurse. *Pups must be cleaned immediately, then returned to their mothers. The mothers will take the pups back after they have been washed and dried.*

As soon as the flooded cage is found these are the steps to take:

1. Remove mice to a dry cage immediately.

2. Fill an empty mouse cage or 1 gallon ice cream container with ¾-1 in. of warm water (water must be a temperature comfortable to touch to your bare wrist).

3. Neonates (pinkie mice) up to pups just opening their eyes should be held in your cupped hand and briefly dipped in and out of the bath water. Pups with their eyes open, weanlings and adult mice can be allowed to swim for about one minute in the bath water.

4. Hand-dry each mouse with a tissue or soft Wyp-all and return to the clean cage.

5. Place the cage on a warming pad and under a warming lamp and monitor closely.

Medicated Water/ Treating Mice with Oral Antimicrobials

NOTE: Except for the routine use of SMZ in the drinking water as a preventative against Pneumocystis in immunocompromised mice, (ie. SCIDs), SMZ, Amoxicillin and any other antimicrobial water additive or medicated feed may be used *only as directed by the LAM Veterinary Staff* and on a case-by-case basis. Do not initiate or discontinue ANY systemic antibiotic treatments without first consulting with the LAM Veterinary Staff.

NOTE: Systemic antibacterial agents Sulfamethoxazole (SMZ) and Amoxicillin suspensions are for ORAL use in the drinking water only.

Medicated Water/ Treating Mice with Oral Antimicrobials, con't.

Consult the LAM Veterinary Staff for dose changes or alternatives if mice will not drink the treated water. Watch medicated animals carefully for dehydration as the medication may affect palatability.

SMZ Use:

1. Treatment for a specific condition: At the direction of the veterinary staff.

2. Mice without normal immune systems (SCID, NOD-SCID,nude, RAG, etc.): Administered on a continuous basis of 4 days medicated water, three days regular water.

SMZ Solution Preparation:

- Sulfatrim stock suspension comes in 16 oz. bottles and contains 200mg/5ml (40mg/ml) of Sulfamethoxazole and 40mg/5ml (8mg/ml) Trimethoprim.

- The standard dose for rodents = 7.8 ml SMZ solution/250 ml drinking water.

    1. Fill a 250 ml rodent water bottles with water from the bottle filling station.

    2. 7.8ml of the Sulfatrim Stock suspension to each water bottle. Mix well by gently agitating the bottles.

    3. Place bottle of SMZ solution onto cage. Rotate the bottles daily to re-suspend the ingredients.

SMZ Solution Administration:

- Provide the SMZ solution in the water bottle for four continuous days each week from Tuesday to Friday.

- Do not allow animal access to any other water source.

- On the fifth through the seventh day (Saturday through Monday), provide regular drinking water.

Treating Mice with Oral Antimicrobials, con't.

Amoxicillin Use

1. Treatment for a specific condition: At the direction of the veterinary staff.

2. Amoxicillin can be mixed into the drinking water, prepared in a nutritional gelatin supplement or fed as a medicated tablet.

Amoxicillin Suspension Preparation:

Amoxicillin (Amoxil® Amoxicillin Pediatric Drops) is in powder form and must be reconstituted before use. After reconstitution, the suspension concentration will be 50 mg Amoxicillin/ml.

1. To a 100 ml bottle of powdered Amoxicillin, add 30 ml of animal drinking water. Shake vigorously until all of the white powder has turned pink.

2. Add an additional 30 ml of water for a total of 60 ml. Shake vigorously to ensure an even mixture.

3. The Amoxicillin is now ready to add to the individual water bottles.

4. If it is be stored for later use, write the date on the bottle using an indelible marker (Sharpie).

5. Store in the refrigerator for a maximum of 14 days.

Amoxicillin Solution Preparation:

Amoxicillin solution is administered at the rate of 50 mg/kg of body weight/day given in the drinking water.

1. Fill rodent water bottles with water up to the bottom of the bottle neck. Use water from the bottle filling station.

2. Using a 5 ml syringe, add the Amoxicillin suspension to each water bottle as follows:
   a. For 250 ml bottles (small water bottles), add 1.7 ml suspension
   b. For 550 ml bottles (large water bottles), add 3.8 ml suspencion

3. Secure stoppers with sipper tubes onto the bottles. Mix well by gently agitating the bottles.

Treating Mice with Oral Antimicrobials, con't.

4. Place bottle of Amoxicillin solution onto cage. Rotate the bottles daily to re-suspend the ingredients.

Amoxicillin Solution Administration:

- Provide the Amoxicillin solution in the water bottle on a continuous basis or as directed by the Veterinary staff.
- Replace the water bottles every 3 days or as needed.
- Do not allow animal access to any other water source.

Nutritional Gelatin Supplement with Amoxicillin Preparation:

1. Mix together the following:

   2 cups boiling water
   1 package gelatin
   60 ml of Stat-VME
   20 ml of Pediasure
   2 scoops of designer protein

2. Pour mixture into a blender. Blend thoroughly
3. Allow mixture to cool slightly
4. Add 4 ml of the Amoxicillin suspension
5. Blend thoroughly
6. Pour into cake pans
7. Refrigerate
9. Gelatin is ready to feed when mixture is solid

Nutritional Gelatin Supplement with Amoxicillin Administration:

- Feed 1 teaspoon/mouse/day or as directed by the Veterinary staff.

Medicated Diet :

Bio-Serv, Frenchtown, NJ (1-800-996-9908) custom manufactures gamma-irradiated medicated pellets for laboratory rodents containing Amoxicillin or SMZ. Feed at the rate of 1 tablet/2 mice/day.