**Anesthesia, Analgesia and Euthanasia**

Procedures that are painful to humans are considered to be painful to animals. Always use the appropriate anesthetics and analgesics when performing surgeries/doing procedures on animals.

**DEFINITIONS**

Pain – An unpleasant sensory or emotional experience associated with actual or potential tissue damage

Anesthesia - A total loss of sensation in a part of or in the entire body

Analgesia – A complete loss of sensation to pain

Euthanasia – Causing death without pain

**ANESTHESIA**

**Classification of Anesthetics**

1. Injectables – Effects of these agents cannot be reversed quickly. The drug must be metabolized, excreted, or counteracted by another drug to terminate anesthetic action. Examples include sodium pentobarbital, ketamine/xylazine cocktail. Some are controlled substances. Logs must be kept of usage and are subject to audit by the DEA (Drug Enforcement Agency).
2. Inhalants – Effects of these agents can be reversed quickly. The agent is eliminated when the administration is discontinued as the animal exhales. The most common inhalant is isoflurane.
3. Dissociatives – Agents that depress the central nervous system and produce a state of catalepsy (ketamine). These are most effective when combined with tranquilizers and sedatives (e.g., xylazine, diazepam).

**ANALGESIA**

1. Opiods – Buprenorphine, Butorphanol. These are controlled substances. Logs must be kept in the lab of usage and are subject to audit by the DEA.
2. NSAIDs – Non-steroidal anti-inflammatory drugs not controlled substances.

**Points to Remember for all procedures requiring Anesthesia/Analgesia**

* Always use the anesthetic and analgesic that is listed in your protocol.
* Calculate the dose by body weight
* Test the animal’s reflexes (pedal and palpebral) after the anesthetic has taken effect and before beginning surgery.
* Monitor the depth and rate of respiration (increase in depth and decrease in rate signify anesthesia).
* Monitor body temperature when the animal is anesthetized – temperature falls, especially in small species. Perform surgeries on a heated surface, when available.
* Drugs under the control of the Drug Enforcement Agency must be stored in a locked cabinet in a secure area.
* A written record is required when controlled drugs under the control of the DEA are used (how much of the drug you have, how much was used and for what purpose).
* An inventory list of anesthetics, analgesics, tranquilizers, sedatives and other drugs should be kept.
* For all procedures that use anesthesia (which may not be surgery), a Surgery/Post-Operative Report must be completed if the animals will survive. This form must be turned in to Tito Nelson (room RES-128) after all animals have woken up.
* Lab staff must stay with the animals until they have all woken up.
* Animals may need an additional heat source while waiting to wake up.
* Procedure rooms may be used for procedures. Reserve the room with Tito Nelson (x0590) in advance.
* Isoflurane machines may be used for procedures; there is a fee for this. Reserve the equipment with Tito Nelson (x0590).
* Analgesics must be used for painful procedures unless it is scientifically justified to withhold such agents according to your protocol.

**EUTHANASIA**

**Methods of Euthanasia**

* Barbiturate overdose
* CO2 asphyxiation **– Must always be followed by a physical means to ensure death**, such as cervical dislocation or pneumothorax (examples). Use CO2 from tanks, not from dry ice.
* Cervical dislocation – Must be preceded by anesthesia or CO2 asphyxiation unless scientifically justified in the protocol. If cervical dislocation alone is done, it must be performed by well-trained personnel.
* Decapitation – Must be preceded by anesthesia or CO2 asphyxiation unless scientifically justified in the protocol.

**Euthanasia Procedures**

* Always follow the methods of euthanasia that are outlined in your protocol.
* Ask questions if you are ever unsure of a procedure.
* Fill out a green euthanasia sheet and mark the cage with an “X” if you need DLAM to euthanize animals for you (follow procedure in Policy Manual).

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