



Dartmouth College

Institutional Animal Care and Use Committee

IACUC Guidelines

Title: Guidelines on Analgesia in Research Animals

Guideline

In a continuing attempt to balance judiciously the research objectives and the legal and moral obligation to alleviate pain in laboratory animals, the Dartmouth College IACUC has adopted the following position:

Unless there is a scientific or other justified reason to the contrary, investigators must administer analgesics for procedures associated with more than momentary or slight pain in animals.

If a painful procedure needs to be performed without the use of an analgesic they must be scientifically justified and approved by the IACUC.

Indications for Use

Operative procedures which cause pain in humans should be expected to cause pain in animals. In determining which procedures require pre/postoperative analgesia, several factors should be considered, including:

1. The invasiveness of the procedure:
 - Are body cavities invaded?
 - Are especially sensitive tissues involved, e.g., bones or teeth?
 - Is significant tissue destruction or inflammation produced?

2. The degree of severity of pain expected:
 - How painful is a similar procedure in humans?
 - This can be determined by observing the behavior of the animal during postoperative period; e.g., level of activity, appetite, dehydration, roughness of hair coat compared to sham anesthetized controls, weight loss.

Preoperative Analgesia

The analgesic is given 30 minutes before surgical insult. Postoperative doses are given in accordance with the duration of action for the selected drug(s) vary by species.

Postoperative Analgesia

Analgesic is desirable for surgical procedures involving penetration deeper than the skin and subcutaneous tissues including the invasion of bones, joints, teeth or significant destruction or inflammation in other tissues. In all cases, however, analgesics should be given if signs of pain are observed.

Pain Recognition by Species

Signs of pain which are common for many species include anorexia with subsequent loss of weight, abnormal posture and self mutilation. Listed below are additional signs of pain for individual species and can be utilized to assist investigators and animal care staff in recognizing some degree of pain.

Bird – Birds hide signs of pain better than most other species. This, and the fact that the feathers make it difficult to visually assess the animal, means that by the time the changes are evident, the bird is quite debilitated. Clinical signs of pain in birds may include:

- decreased activity
- ruffled feathers
- not perching or perching in abnormal locations in the cage
- decreased appetite
- weight loss
- abnormal vocalization or no vocalization
- dehydration
- changes in stool appearance (color and consistency)

Cat – Cats in pain are generally silent but may howl or hiss when approached. Clinical signs of pain may include:

- tendency to hide
- still posture and may sit hunched in sternal recumbancy with reluctance to stretch out
- howl and show demented behavior with desperate attempts to escape
- ungroomed appearance, with a change in normal temperament
- dilation of pupils, with increased pulse rate and panting
- behavioral changes

Dog – Dogs in pain are generally quieter and less alert with stiff body movements and an unwillingness to move. Clinical signs of pain may include:

- lying still or standing crouched
- restlessness
- shivering, increased respirations while panting
- may whimper or howl when left alone, or growl without apparent provocation and become vicious when handled
- may bite or scratch at painful regions
- behavioral changes

Ferret – Ferrets are normally very curious, inquisitive, and active in the exploration of their environment and interactions with cage mates and people. If these behaviors are absent, it may be an indicator for pain. Other clinical signs of pain may include:

- lack of interest/interaction with environment
- lethargy
- anorexia
- vocalization when handled
- rough/ungroomed appearance
- mutilation of painful area
- may become aggressive when handled

Goat and Sheep – Sheep and goats may appear dull and depressed with little interest in their surroundings. Clinical signs of pain may include:

- teeth grinding
- rapid and shallow breathing
- sudden drop in milk yield
- violent reaction to handling or rigid posture designed to immobilize the painful region
- changes in facial expression, grunting or grinding of teeth

- changes in gait or posture

Pig – Pigs normally squeal and attempt to escape when handled but these behaviors may be accentuated by pain. Clinical signs of pain may include:

- changes in gait or posture
- unwilling to move and may hide in bedding

Primate, Non-Human – Non human primates show little reaction to surgical procedures or to traumatic injury. Obvious signs of pain are not readily seen. However, signs of pain may include:

- reduced appetite and/or reduced interest in food treats
- huddling in a crouched posture, head pressing, touching or pushing or scratching affected areas, favoring limbs, reduced movement, increased or decreased aggressiveness toward care givers, and other changes in behavior
- avoid companions
- poor or absent grooming
- increased attention from cage mates
- facial contortions, clenching of teeth
- restlessness and shaking accompanied by grunts or groans
- self mutilation

Rabbit – Rabbits in pain may be apprehensive, and assume a hunched posture or unwillingness to move. Other clinical signs of pain include:

- exaggerated reactions to handling, sometimes with vocalization
- excessive scratching or licking
- teeth grinding
- increased respiratory rate
- dilation of pupils
- anorexia

Rodent - Rodents in pain usually exhibit decreased exploratory behavior, piloerection, hunched posture, rough and ungroomed hair coat and ungroomed appearance. It must be emphasized that these signs are also associated with illness. Consult Veterinary Services for evaluation. Other clinical signs of pain may include:

- excessive scratching and licking
- more aggressive when handled
- vocalization when handled
- weight loss
- porphyrin tearing (rats)
- twitching of the back and flank (following laparotomy)
- mutilation of painful area