

Pain and Distress in Laboratory Animals

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The American College of Laboratory Animal Medicine (ACLAM), a specialty organization recognized by the American Veterinary Medical Association, takes the following position regarding pain and distress in animal subjects used or intended for use in research, teaching or testing:

1. Procedures expected to cause more than slight or momentary pain (e.g., pain in excess of a needle prick or injection) require the appropriate use of pain-relieving measures unless scientifically justified in an approved animal care and use protocol.
2. Similarly, experimental, husbandry or other procedures or situations that produce distress (stress that will alter or have the potential to alter an animal's homeostasis) should be provided either chemical (anesthetic, tranquilizer, analgesic) means of relief or an alternative method, such as training or acclimatization to reduce the associated distress.
3. Requests for exceptions to the use of analgesics, tranquilizers, anesthetics or non-chemical means of providing relief from pain and/or distress must be scientifically justified by the Principal Investigator and approved by the Institutional Animal Care and Use Committee (IACUC) prior to initiation of the protocol.
4. Paramount in the decision to provide relief from pain and distress is the professional judgment of a trained laboratory animal veterinarian. The Guide for the Care and Use of Laboratory Animals (ILAR, 1996) and the Animal Welfare Act emphasize the vital role of the veterinarian in this process--the attending veterinarian, or his/her designee, should recommend the pain or distress-relieving measure or agent, dose, frequency, and duration of administration according to his/her professional judgment and clinical assessment of the research subject(s). Thus, veterinary participation is needed in the planning phase of those experiments with the potential to produce pain or distress and in the ongoing review of the animal's condition. Consideration should be given to preventing pain or distress by using preemptive measures whenever possible (Lumb & Jones, 1996). While the animal care and use protocol must provide information on types of pain and distress-relieving medications and treatments intended to be used, the veterinarian's clinical assessment and judgment regarding what is in the best interest of the animal should be given overriding precedence.

Definition of Pain and Distress

The International Association for the Study of Pain has defined pain in human beings as "an unpleasant sensory and emotional experience associated with

potential or actual tissue damage, or described in such terms" (Institute for Laboratory Animal Research (ILAR), Volume 41, Number 2, 2000). While the ability of animals to feel pain is not completely understood, scientists and ethicists believe that animals perceive pain in very similar ways to humans. As a result, the Interagency Research Animal Committee (IRAC) in 1985 advised that "unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals."

Distress is a much more difficult term to define, particularly in animals. Carstens and Moberg, in "Recognizing Pain and Distress in Laboratory Animals" (ILAR 2000), provide the definition of stress "as the biological responses an animal exhibits in an attempt to cope with a threat to its homeostasis." When stressors are mild and/or of short duration, the animal may regain homeostasis without any lasting effects. However, stress results in distress to the animal when the stressor results in disruption of biological functions which are critical to the animal's well being. When normal function is disrupted, pathology may occur, threatening the animal's welfare, and the animal experiences distress.

Background

The ACLAM recognizes that both regulatory and biomedical science sponsoring agencies, such as the United States Department of Agriculture (USDA) and the Public Health Service of the United States Department of Health and Human Services (PHS/DHHS), through their respective regulations and policies, support the concept of "adequate veterinary care" as it applies to the recognition and relief of pain and distress. The present ACLAM document addresses the issue of alleviation of pain and distress and is intended to apply to laboratory animals used, or intended for use, in research, teaching or testing. The Animal Welfare Regulations (9 CFR, Chapter 1, 1-1-92 Edition, Section 1.1, Definitions) define a painful procedure as "any procedure that would reasonably be expected to cause more than slight or momentary pain or distress in a human being to which that procedure was applied, that is, pain in excess of that caused by injections or other minor procedures." USDA/APHIS Policy #3 states that "The withholding of pain and/or distress relieving care must be scientifically justified in writing and approved by the IACUC." The veterinarian must have the responsibility and authority to assure that handling, restraint, anesthesia, analgesia and euthanasia are administered as required to relieve pain and such suffering in research animals, provided such intervention is not specifically precluded in protocols reviewed and approved by the IACUC. The veterinarian must exercise good professional judgment to select the most appropriate pharmacologic agent(s) and methods to relieve animal pain or distress in order to assure humane treatment of animals, while avoiding undue interference with the goals of the experiment.

An integral component of veterinary medical care is prevention or alleviation of pain associated with procedural and surgical protocols. Pain is an undesirable variable in most research projects and, if not relieved, can lead to unacceptable levels of stress and distress in animals. Therefore, the proper use of anesthetics, tranquilizers, analgesics, or non-chemical intervention in research animals is an ethical and scientific imperative. Fundamental to the relief of pain in animals is the ability to recognize its clinical signs in specific species. It is therefore essential that personnel caring for and using animals be very familiar with species-specific (and individual) behavioral, physiologic, and biochemical indicators of well-being.

References

Animal and Plant Health Inspection Service, USDA 9 CFR, Chapter 1, Subchapter A-Animal Welfare, U.S. Government 1-1-92 Edition.

Animal and Plant Health Inspection Service, USDA, Policy #3 --- Veterinary Care--- April 14, 1997 -- Last revision on January 14, 2000.

Guide For The Care And Use Of Laboratory Animals, Institute of Laboratory Animal Resources, National Research Council, 1996.

ILAR, Humane Endpoints for Animals Used in Biomedical Research and Testing (NRC, Volume 41, Number 2, 2000)

Lumb & Jones, Veterinary Anesthesia, 3rd Edition: 51-53, 1996.

Recognition and Alleviation of Pain and Distress in Laboratory Animals (NRC 1992).

U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training.