

Contents

Policies & Perspectives 1-2

- AAALAC Conference 2003
- USDA Proposal Regarding Pain and Distress

Resources & Services 2

- Pain & Distress Resources
- ACLAM Awards Research Grants

Upcoming Conferences 2

From the Technical Literature 2-3

- Scottish Research Team Concludes That Fish Feel Pain
- Distress in Animals: Is It Fear, Pain, or Physical Stress?
- Abnormal Animal Behavior Reflects Psychiatric Dysfunction, May Invalidate Research Data

Statistics on Animal Use & Pain & Distress 3-4

- EU Releases Report on Animal Use in Research
- Research Animal Use Declines in the Netherlands

Recent Publications 3

Attitudes & Public Opinion 4

- Support for Animal-Based Research Increasing in the United Kingdom

Helpful Websites 4



Policies & Perspectives

AAALAC CONFERENCE 2003

Inadequate attention to animal pain and distress accounts for many of the deficiencies found by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International during institutional evaluations over the past three years, according to information presented at the AAALAC conference in Reston, Virginia, May 19-20. AAALAC presented an analysis of the most common deficiencies in key areas such as Institutional Animal Care and Use Committee (IACUC) functions and veterinary care. IACUC protocol review deficiencies included inadequate management or evaluation of pain or distress. Specifically, reviews were deficient in the justification for withholding analgesia, the evaluation of pain categories, the evaluation of the potential for pain and distress, and the determination of humane endpoints. Deficiencies in veterinary care related to institutions' written guidelines on anesthetics/analgesics (A/A), veterinary guidance on use of A/A, actual use of A/A, and monitoring and documentation of surgical and postoperative care. Some of these deficiencies were serious enough to jeopardize the institutions' accreditation with AAALAC (a voluntary assessment and accreditation body), if not corrected promptly.

AAALAC's findings indicate that much work remains to be done in minimizing research animal pain and distress. The

Humane Society of the United States (HSUS) will continue to work with scientific experts, research institutions, oversight agencies, and funding institutions to address this problem.

USDA PROPOSAL REGARDING PAIN AND DISTRESS

The U.S. Department of Agriculture (USDA) will not act on its proposal to define distress and revise its animal pain and distress classification system at this time, according to a USDA official's announcement at the Public Responsibility in Medicine and Research conference in San Diego, California, March 29-April 1. The HSUS has received written confirmation from the USDA on this decision, which also specified that the agency would continue to examine these issues. The USDA announced its proposal in July 2000 (see *Pain & Distress Report 1(1):1 and 1(2):1*) and cited the lack of a definition of distress in the Animal Welfare Act regulations as a barrier to the effective minimization and regulation of distress in research animals. The agency also cited the well-known problems with its pain and distress classification, now 30 years old, and proposed to remedy this situation. The USDA's July 2000 announcement sought public comments on the agency's proposal, and approximately 2,600 comments were submitted.

The HSUS believes the USDA should act now to define distress and revise its pain and distress classification system.

continues on page 2

Adopting a workable definition would lead to increased attention to distress as an issue in laboratory animal care and scientific study, much as the adoption of the term "psychological well-being" within the Animal Welfare Act and USDA standards led to an explosion of attention to this issue, despite the difficulties of precisely defining the term.

Resources & Services

PAIN & DISTRESS RESOURCES

A compilation of resources on research animal pain and distress is now available on The HSUS website; visit www.hsus.org and click on Animals in Research and then on Animal Suffering. The website includes published papers, books, and excerpts regarding pain and distress definitions, biology, recognition, assessment, and alleviation, as well as information on euthanasia, anesthesia/analgesia, neonatal and fetal pain, guidelines, policies, and regulations. Other important resources include related websites, newsletters, and training materials.

ACLAM AWARDS RESEARCH GRANTS

The American College of Laboratory Animal Medicine (ACLAM) Foundation, along with two partner foundations, awarded eight research grants totaling \$142,000 in July 2002 to increase knowledge in laboratory animal science and

medicine. Two recipients conducted work related to animal welfare. Gregory P. Boicin, DVM, of the University of Cincinnati, received the Henry and Lois Foster Foundation research grant for "Telemetric Measurements of Effects of Post-Operative Analgesics." Valerie Bergdall, DVM, of Ohio State University, received the AAALAC International assistance research grant for "Effects of Housing Conditions on Operant Conditioned Rats." For more information, visit www.aclam.org.

From the Technical Literature

SCOTTISH RESEARCH TEAM CONCLUDES THAT FISH FEEL PAIN

Researchers from the Roslin Institute and the University of Edinburgh generated strong evidence that fish perceive pain (2003, *Science*, 300: 897). The study revealed that fish not only possess nervous system receptors in their heads that respond to damaging stimuli (*nociceptors*) but also experience significant physiological and behavioral changes following the application of short-acting noxious agents over an extended period of time. These changes are comparable to those observed in higher mammals. The team concluded, "[o]ur research demonstrates nociception and suggests that noxious stimulation in the rainbow trout has adverse behavioral and physiological effects. This fulfills the criteria for animal pain." The full

report of this study will be published in the *Proceedings of the Royal Society* (United Kingdom).

In some countries, fish constitute a substantial proportion of the vertebrate animals used in research (e.g., Canada, 21%); the number of fish used in U.S. laboratories is not known.

DISTRESS IN ANIMALS: IS IT FEAR, PAIN, OR PHYSICAL STRESS?

Grandin and Deesing (American Board of Veterinary Practitioners 2002 Symposium; see www.grandin.com/welfare/fear.pain.stress.html) assessed whether small-brained animals have the capacity to experience pain, fear, and suffering as do larger-brained animals, using nervous system circuitry and the active seeking of pain relief as criteria. Pain perception requires higher association brain circuits than does fear, which operates in a more primitive brain circuit, but fear likely causes suffering in all vertebrates and possibly some invertebrates. The prefrontal cortex (PFC) is involved in pain perception and the emotional aspect of pain. While the PFC makes up a higher percentage of brain size in humans than in other species, the authors concluded from their literature review that "all mammals, including rats have a sufficiently developed PFC to suffer from pain."

There is also evidence that animals will seek pain relief, strongly suggesting that they do experience pain. For example, rats experiencing chronic pain have been shown to drink water containing analgesic

Upcoming Conferences

Eighth World Congress of Veterinary Anesthesia

- ▶ Sponsored by The American College of Veterinary Anesthesiologists, European College of Veterinary Anaesthesia, Association of Veterinary Anaesthetists, and SurgiVet
- ▶ September 16–20, 2003
- ▶ Knoxville, Tennessee
- ▶ For more information, go to www.vet.utk.edu/wcva

IACUC-Advanced Workshop

- ▶ Sponsored by the Office of Laboratory Animal Welfare (OLAW), the Scientists Center for Animal Welfare (SCAW), Working for Animals used in Research, Drugs and Surgery (WARDS), and the Office of Animal Care and Use (OACU)
- ▶ October 28, 2003
- ▶ Bethesda, Maryland
- ▶ For more information, go to www.scaw.com/iacuc-advanced.htm

instead of a sweet solution that they otherwise prefer. In some species, such as chickens and some reptiles, fear overrides pain owing to an apparent inability to simultaneously process two emotions, but these species do appear to suffer from pain, especially chronic pain, and they do respond to analgesics when, for example, a painful stimulus is applied to their skin. According to the authors, whether response to an acutely painful stimulus in these species stems from suffering or reflex is yet to be determined definitively.

However, it is important to emphasize that there is published evidence that such responses are not considered to be reflexes and that these species do, in fact, suffer.

ABNORMAL ANIMAL BEHAVIOR REFLECTS PSYCHIATRIC DYSFUNCTION, MAY INVALIDATE RESEARCH DATA

Laboratory animal stereotypies cause concern for animal welfare, but new evidence suggests that they may also raise important issues regarding the validity and replicability of research data. Cage-related stereotypies are common in many laboratory animal and bird species housed in standardized cages; these behaviors develop in barren environments or during isolated rearing and may reflect poor animal welfare (2002, *Behavioural Brain Research*, 136(1): 83–92). Recent work has shown that the performance of these abnormal behaviors is significantly correlated with behavioral responses that indicate psychiatric dysfunction (Garner et al., in press, *Animal Behaviour and Behavioural Brain Research*). Laboratory animals who perform high levels of stereotypy fail the same psychiatric tasks requiring flexible behavior as do autistic and schizophrenic humans. The brain dysfunction implicated in this research may interfere with animals' ability to respond accurately in tests used in behavioral science, neuroscience, and neuropharmacological research. It may

also increase individual variation within an experiment, thus reducing data consistency and further increasing "noise" within data. This research has also shown that simple housing enrichment can reduce the prevalence and frequency of stereotypy. Improving housing conditions may not only improve animal welfare but also may dramatically increase the quality of scientific data, potentially providing better models of human disease—as already has been shown in Huntington's disease research (2002, *Annals of Neurology*, 51(2): 235–242) and stroke research (2003, *ILAR Journal*, 44(2): 110–124, 130–143, 144–152).

Statistics on Animal Use & Pain & Distress

EU RELEASES REPORT ON ANIMAL USE IN RESEARCH

The European Commission has published a report on the number of animals used for research and other scientific purposes in member states of the European Union (EU) during 1999. The total number of animals used was 9.8 million, down from 11.6 million in 1996 (the year covered in the preceding report). Rats and mice made up 81% of all utilized animals. Other species included (in descending order of use): cold-blooded animals (fish, amphibians, reptiles), birds, guinea pigs, rabbits, farm animals (pigs, cattle, sheep, etc.), carnivores (cats, dogs, ferrets, etc.), and primates. Three of the EU's five categories of experiments accounted for the bulk of animal use: the discovery, development, or quality control of products or appliances for human and veterinary medicine and dentistry (52%); biological studies of a fundamental nature (30%); and toxicological or other safety evaluations (10%). To view the report, visit http://europa.eu.int/eur-lex/en/com/rpt/2003/com2003_0019en01.pdf.

RESEARCH ANIMAL USE DECLINES IN THE NETHERLANDS

The latest animal research statistics from the Netherlands (gathered by the Dutch Ministry for Public Health, Welfare and Sport) reveal that 714,449 animals were used during 2001, a 4% decline from 2000. In 2001, animals were used for the following purposes: studies of a fundamental nature (47%); discovery, development, and quality control, including safety evaluation of products or appliances (43%); toxicology (8%); education and training (2%); and diagnosis (1%). Animals were categorized according to the level of discomfort ("a state including impairment of the animal's health, or as appreciable pain, injury or

continues on page 4

Recent Publications

Ansah, O. B., Vainio, O., Hellsten, C. & Raekallio, M. (2002).

Postoperative pain control in cats: Clinical trials with medetomidine and butorphanol. *Veterinary Surgery*, 31(2): 99–103.

Sharp, J., Zammit, T., Azar T., & Lawson, D. (2003). Stress-like responses to common procedures in individually and group-housed female rats. *Contemporary Topics in Laboratory Animal Science*, 42(1): 9–27.

Smith, J. A., & Jennings, M. (2003). *A resource book for lay members of local ethical review process*. West Sussex, England: Royal Society for the Prevention of Cruelty to Animals.

Sternberg, W. F., & Ridgway, C. G. (2003). Effects of gestational stress and neonatal handling on pain, analgesia, and stress behavior of adult mice. *Physiology & Behavior*, 78(3): 375–383.

Statistics on Animal Use & Pain & Distress

other grave distress caused to the animal”) that the animals experienced (assessed retrospectively). In 2001, 37% of the animals experienced moderate to very severe discomfort; the balance experienced discomfort that was either minor (40%) or minor/moderate (23%).

Attitudes & Public Opinion

SUPPORT FOR ANIMAL-BASED RESEARCH INCREASING IN THE UNITED KINGDOM

The results of a recent public opinion poll in the United Kingdom, commissioned by the Coalition for Medical Progress (CMP) and conducted by an independent polling firm (MORI), indicate that support for animal-based research is increasing. Of more than 1,000 people surveyed, 90% gave their conditional support for the use of animals in research, compared with 84% in 1999. As pointed out in an editorial in *ATLA* (2003, 31: 83-84), these numbers are difficult to interpret since 35% of respondents to the same survey agreed with the statement “I do not support

the use of animals in any experimentation because of the importance I place on animal welfare,” while 21% agreed that “the Government should ban all experiments on animals for any form of research.” Additionally, although the majority of the survey focused on the justification for the use of animals in research, 89% of respondents agreed that “there needs to be more research into alternatives to animal experiments.”

According to MORI, the survey further indicated that the public is more willing to trust scientists to avoid unnecessary suffering and that the public has greater confidence in regulations covering animal research compared to 1999. However, the survey also found that mistrust of scientists involved in animal experiments remains high, and that a large number of people still oppose the use of genetically engineered animals in research. The director of CMP indicated that those surveyed want “high welfare standards, avoidance of suffering, non-animal methods if they are available and strict regulation.” For more information, visit www.amprogress.org/News/news.cfm?ID=513&c=62.

Helpful Websites

The Animal Legal & Historical Center at www.animallaw.info, a project of the Michigan State University-DCL College of Law, contains information on U.S. federal and state statutes, foreign national law, and international materials that govern the care of captive animals, collection of specimens, and protection of endangered species.

The Animal Welfare Institute has created the Environmental Enrichment for Primates annotated database at www.awionline.org/lab_animals/biblio/enrich.htm to help researchers improve the lives of nonhuman primates used in research. The database includes more than 1,800 papers, abstracts, and other sources of information on diversifying primates’ environment and diet and a photographic information guide for housing and studying rhesus monkeys.

An independent website for University of Edinburgh students at www.vet.ed.ac.uk/animalwelfare/index.htm provides information on animal welfare and husbandry. The site addresses a range of topics, including animal pain, legislation, animal behavior, husbandry, and laboratory animal health.

Pain & Distress Report

provides IACUCs and others with up-to-date information on issues regarding pain and distress in laboratory animals.

Also available online at www.hsus.org/ace/11401 or contact ari@hsus.org to request copies by e-mail.

Please share this report with your colleagues and IACUC members.

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