

NEW GUIDELINES

1. Euthanasia in Elephants

1. Introduction

Euthanasia is an act of inducing humane death in an animal with minimal pain and distress. (AVMA, 2001). It is responsibility of the veterinarian to ensure that the animal is dealt with highest degree of respect, with an emphasis on making the entire procedure/ operation as painless and distress free as possible. Euthanasia should result in rapid loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function (AVMA, 2007). It is important that the death of the animal is verified after euthanasia and before disposal of the animal. Death must be confirmed by examining the animal for cessation of vital signs, and consideration given to the animal species and method of euthanasia when determining the criteria for confirming death.

2 .Procedure to be followed for ordering Euthanasia by Chief Wildlife Wardens

It is proposed that Euthanasia of elephants may be carried out only in the specific circumstances when the elephant is in such agony or pain that it is cruel to keep it alive. The animal should not be euthanised without getting the animal examined by a team comprising of at least two veterinarians from the experts' panel below ; a member of the Society for Prevention of Cruelty to Animals, wherever applicable ; one senior Veterinarian , preferably a Professor in the neighbouring veterinary college / agricultural university / recognized Zoo and a member of the Animal Welfare Board, wherever it is possible.

Panel of veterinarians

College of Veterinary Sciences , Assam

- (i) Dr Apurva Chakraborti, Professor, Deptt of Pathology,

- (ii) Dr KK Sharma, Associate Professor, Deptt of Surgery and Radiology
- (iii) Dr G Mahto, Associate Professor, Deptt of Medicine.

Centre for studies on Elephants , Kerala

- (iv) Dr KC Panickar, Professor
- (v) Dr Jacob Cherian, Professor
- (vi) Dr PC Alex, Professor

IVRI, Izzatnagar , UP

- (vii) Dr Dharmeshwar Das, Joint Director cum Dean

3. Euthanasia in elephants

The use of injectable euthanasia agents is the most rapid and reliable method of performing euthanasia. It is the most desirable method when it can be performed without causing fear or distress in the animal (AVMA, 2007). Following should be considered while administering the euthanasia agent (Anon, 2005).

1. Procedure is appropriate for the species
2. Proper route, dose, and concentration of the agent is ensured
3. Whether the procedure would result in fear behavior, pain, struggling, or vocalizations
4. Unconsciousness is rapidly achieved following administration of euthanizing agent
5. Personnel carrying out the procedure has appropriate technical skills
6. The agent is economical.

It is important to ensure that all the procedures involved in the entire operation are carried out following proper review and in the most efficient, ethical and professional manner. The procedure for use of euthanasia in elephants can be narrowed down to two methods; the details are provided as follows:

3.1 Procedure 1

Euthanasia in elephants can be primarily carried out as a 2-stage process involving heavy sedation or anesthesia followed by intravenous injectable pharmaceutical (lethal agent). This procedure is being followed by the BIAZA and has been recommended by American Association of Zoo Veterinaries and Debra Bourne, Senior Veterinary Editor, Wildlife Information Network, London, UK.

It includes administration of sufficient sedative or anesthetic agent (Xylazine hydrochloride/ Etorphine hydrochloride) to induce recumbency and unconsciousness. Once the animal is recumbent, 40-60 mg/kg of potassium chloride can be administered intravenously, to induce cardiac arrest (BIAZA, 2006; AAZV 2006 and AVMA 2007).

3.1.1 Choice of drug

Etorphine (narcotic) is the drug of choice for immobilizing free ranging wild elephants for full recumbent anesthesia. In addition, carfentanil (narcotic) as well as sedative/ hypnotics such as xylazine hydrochloride also have been used successfully (Kock et al., 1993). In captive elephant an effective and humane method involves the administration of a recumbency-inducing dose of xylazine hydrochloride followed by the intravenous administration of potassium chloride at 44-60 mg/kg body weight. It is important that the death of the animal is verified after euthanasia and before disposal of the animal, since an animal in deep narcosis following administration of an injectable may appear dead, but might eventually recover.

Potassium chloride is an acceptable euthanasia substance only when administered to deeply anesthetized animal intravenously or intra-cardially. The

potassium ions are cardio toxic and rapid intravenous or intracardiac administration causes cardiac arrest. Residual tissue concentration of general anesthetics after anesthetic induction has not been documented. Though no scavenger toxicosis have been reported with potassium chloride in combination with a general anesthetic, proper carcass disposal should always be attempted to prevent possible toxicosis by consumption of a carcass contaminated with general anesthetics (AVMA, 2007). The advantage of using potassium chloride is that it can be easily acquired, transported and mixed in the field.

3.1.2 Procedure 2

Euthanasia may also be achieved using barbiturate overdose AAZV, 2006. Barbituric acid derivatives usually Sodium pentobarbital in combination with local anesthetic agents is an effective euthanasia agent. It induces rapid euthanasia when given intravenously/ intracardially and leads to death by severely depressing the medullary respiratory and vasomotor center, when administered at high doses. Superficial veins used for venous access include the auricular, cephalic (proximal, medial foreleg) or saphenous (lower, medial hind leg) vessels. Because auscultation of the heart is frequently difficult in large elephants, cardiac monitoring and determination of death can be determined by the palpation or through ultrasound imaging of the superficial arteries. (AAZV, 2007)

A primary advantage of barbituric is the speed of action as well as it induces euthanasia smoothly with minimal discomfort to the animals. As these drugs have to necessarily administered intravenously, each animal needs to be restrained prior to administration of drug and requires trained personnel. These drugs also tend to persist in the carcass and may cause sedation or even death of the animal that consume the body. Animals euthanized with any barbiturate must therefore be properly disposed off because of the potential for secondary toxicity to potential scavengers.

4. Guidance document on euthanasia

A number of guidance documents on euthanasia prepared by various national and international agencies are available. (See Box)

1. American association of Zoo Veterinarian (AAZV), 2006 Guidelines on Euthanasia of nondomestic animals. 111 pp.
2. British and Irish Association of Zoos and Aquariums (BIAZA), 2006. Management Guidelines for the Welfare of Zoo Animals (Elephants) 2nd ed. (Incorporating BIAZA's Policy statement and policy document on the management of elephants). 114 p.
<http://wildlife1.wildlifeinformation.org/000ADOBES/Elephant/D307BIAZe/elephant.pdf>
3. The American Veterinary Medical Association (AVMA), 2007. Guidelines on Euthanasia (Formerly the Report of the AVMA Panel on Euthanasia) 39 pp.
http://www.avma.org/issues/animal_welfare/euthanasia.pdf
4. IUCN (2002). Guidelines for the Placement of Confiscated Animals. Prepared by the IUCN/SSC Re-introduction Specialist Group. IUCN, Gland, Switzerland and ERWDA, Abu Dhabi, UAE. 24 pp.
<http://www.iucnsscrg.org/images/EnglishConfGlines.pdf>
5. CPCSEA Guidelines for Laboratory Animal Facility. Issued by the Committee for the purpose of control and supervision of experiments on animals, Tamil Nadu, India. 36 pp. http://envfor.nic.in/divisions/awd/cpcsea_laboratory.pdf

References

Anonymous. (2005). Humane euthanasia of animals.

http://www.agrosecurity.uga.edu/annexes/Annex/Annex05_Euthanasia.pdf

(Accessed December 2007)

Debra Bourne. Euthanasia of Elephants (Disease Investigation & Management-Treatment and Care).

http://wildlife1.wildlifeinformation.org/S/00Man/VeterinaryTechniques/ElIndTech/ElE_Euth.htm (Accessed on December 2007)

Kock, R.A., P. Morkel, and M. D. Kock. (1993). Current immobilization procedures used in elephants. In: Flower, M.E. Editor: Zoo and Wild Animal Medicine: Current Therapy. Ed 3, Philadelphia. WB Saunders, pp 436-441.