ELECTRO NARCOSIS

Since the end of the last century many investigations with electro-anaesthesia have been performed in animals and man. The interest in this method of anaesthesia has emerged because anaesthesia is achieved immediately after the onset of the current and the recovery is very rapid after cutting off of the current. Recently a battery-operated apparatus became available (Feenix Stockstill) for application of electro-anaesthesia and electro-immobilisation under field conditions, and an experiment was conducted with 10 calves, 10 sheep, and 9 pigs, which were equipped with EEG and ECG electrodes. to check the analgesic and other practical effects of the apparatus. The duration of current administration was 20 minutes. Three animals of each species were used as control animals.

In all animals, during administration of the current, the breathing movements appeared to be somewhat impaired. The body temperature, the plasma cortisol level, and the pulse rate were raised during the current administration. Moreover, the pulse rate was irregular.

The corneal reflex remained positive in all animals, and the reaction to painful stimuli was positive in 15 out of 29 experimental animals. The body temperature, pulse rate, and plasma cortisol level remained constant in the control animals. Before and after administration of the current the electroencephalogram recordings were similar, except in one calf and one sheep, both of which showed patterns suggesting a decreased consciousness.

The electrocardiogram recordings showed pronounced changes in cardiac activity. In one pig the heart activity stopped some minutes after the onset of the current. Changes in the electroencephalogram and electrocardiogram were not observed in the control animals during their treatment.

The results suggest that the apparatus did not cause electro-anaesthesia or electro-sleep but had mainly an electro-immobilising effect on the experimental animals. Because of the dubious effects on the animals' welfare, the use of such an apparatus cannot be recommended.

HYPOTHERMIA

Hypothermia may develop in animals anesthetized in a cool environment. A decrease in temperature of 1-3ºC below normal has been demonstrated to provide substantial protection against cerebral ischemia and hypoxaemia in anaesthetized dogs. Life threatening cardiovascular depression may develop when the temperature decreases below 32.8ºC.

Rectal or esophageal temperature should be monitored at regular intervals during inhalation anesthesia, during protracted total intravenous anesthesia and during recovery from anesthesia. Basically, the causes consist of a reduction in heat production by the animal, usually coupled with an increased heat loss.

It is very difficult to influence production of heat but care should be taken not to wet the animal excessively to reduce evaporative heat losses, placing the animal on a warm surface and covering with blankets, drapes, wrapping of extremities with towel and blanket and plastic insulation or hot air circulating devices.

Respiratory heat losses are increased when animal breathes cold dry gas from non-rebreathing system, such losses are reduced by the use of rebreathing circuits, and also maintaining low flow rate and attachment of humidifier to endotracheal tube. Fluids to be administered intravenously, should be warm.

The adverse effects of peri-anaesthetic hypothermia are

1. Impaired cardiovascular function.
2. Hypoventilation
3. Decreased metabolism and detoxification of anesthetic drugs
4. Weakness during recovery
5. Decreased resistance to infection

6. Increased incidence of surgical wound infection
7. Increased postoperative protein catabolism

CHEMICAL IMMOBILIZATION OF WILD ANIMALS

Wild animals are chemically restrained for the following reasons

- Animal translocation and transportation
- To study the ecology and population estimate
- For veterinary studies
- To relieve wild animals in distress
- Control of animals causing distress to the public

Various devices used for injecting the drug from a distance are drug darts, projectile syringes (short range, long range, and extra-long range), blow gun rifle, blow pipe, and stick syringe.

Primates

- Ketamine – 5-20 mg /kg intramuscular
- Xylazine 2 mg/kg intramuscular

Chimpanzee

- Ketamine 10-15 mg/kg body weight
- Xylazine 2 mg/kg

Kangaroo

- Xylazine 8 mg/kg body weight and Ketamine 3 mg/kg combination
- Thiopentone less than 20 mg/kg body weight

Antelope

- Xylazine 0.23 mg /kg and Ketamine 11.54 mg/kg body weight combination

Deer

- Xylazine 0.89-8.0 mg/kg body weight
- Ketamine 10-20 mg/kg body weight

Camels

- Xylazine 0.27-0.51 mg/kg intramuscular

Bears

- Xylazine 2-4 mg/kg and Ketamine 4.5-9mg/kg (Combination)

Bison

- Chloral hydrate 250mg/kg body weight

Elephant

- Asian elephant 100-175 mg Xylazine (total dose)
- Etorphine-Acepromazine combination (2.4 mg/ml-Etorphine and 10mg/ml of Acepromazine per ml) Dose 1 ml/4 feet of shoulder height

Fish:

- Carbon dioxide may be used @ 200 ppm.
- Diethyl ether: Dose varies from 10-15 ml/L (small fish) to 50 ml/L (large fish).
- MS-222 (tricaine methane sulphonate or tricaine mesylate): 25-100 mg/L of water

Reptiles

- Ketamine 20 mg/kg intramuscular
- Xylazine 1 mg/kg

Snakes

- Ketamine 50-130 mg/kg intramuscular
- Tiletamine 10-20 mg/kg intramuscular