

Ketamine-xylazine anaesthesia in Snow Leopard (*Uncia uncia*)

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Chemical immobilization in wild mammals has been in practice since prehistoric times. Opium preparations appear to be the drugs of choice during hunting of wild animals in those times. Today, the most commonly used narcotics are etorphine (M-99) and carfentanil. The dissociative and other tranquilizers are ketamine, xylazine, medetomidine etc. These drugs appear to have wide safety margins and are found suitable for most mammalian species.

A male adult (4 years) Snow Leopard named Prabhat weighing about 30kg showed symptoms of occasional limping of right hind limb. For the purpose of physical examination, the animal was tranquilized with a combination of ketamine* & xylazine** on 20.x.06. The doses of drugs used were as follows: ketamine - 5mg/kg body wt. & xylazine - 1mg/kg body wt. The combined drug (1.5ml : 0.3ml - ketamine: xylazine) was taken into a plastic projectile syringe (3ml capacity) and administered in the thigh region with pressure gun.

The injection was given at 1100hr and induction of anaesthesia took about 10min. Respiration was normal, salivation was minimal and eyes remained open. There was excellent level of analgesia and anaesthesia. The animal was shifted from its enclosure to enclosure having squeeze cage for daily treatment, dressing and observation. The hind leg had moisture sores between the foot pads that led to irritation on walking and occasional limping. The examination and necessary clinical procedures were completed within 25min. Complete recovery occurred 45min (1155hr) after injection of xylazine and ketamine.

Wallach & Boever (1983) reported ketamine and xylazine combination as the most commonly used chemical agent in wild carnivores. The drug potency of the combined drug is useful for achieving the requisite complete immobilization instantaneously. The sedative analgesic and muscle relaxation properties of xylazine have also been found to be useful in combination with ketamine for Snow Leopards without any side effects.

* - Ketamil injection: 100mg/ml ketamine (as hydrochloride)

** - Ilium xylazil - 100 injection: 100mg/ml xylazine (as hydrochloride)

References

Wallach, J.D. & W.J. Boever (1983). *Diseases of Exotic Animals*. W.B. Saunders Company, Philadelphia, 413pp.

Arora, B.M. (2000). *Restraint & Translocation of Wild Mammals*. Publication - CZA, 85pp.

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Mass vasectomy in Black Bucks (*Antelope cervicapra*)

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Sri Chamarajendra Zoological Gardens, Mysore, has a good breeding record of all the deers and antelopes, including Black Bucks. This results in overcrowding and related problems in the limited space. Population management measures like rehabilitation, shifting or zoo exchange programme, use of oral contraceptives, separation of the sexes etc., have been tried. However, these measures have their own limitations. Hence, surgical sterilization of these animals was considered as an alternative.

As countable number of animals in the Zoo, of either sex were considered for sterilization. Sterilization of female is an invasive, time consuming and highly technical procedure that requires proper post-operative care. On the other hand, sterilization of males is less cumbersome, less time consuming and hardly requires any post-operative care. As many male-specific characters sustained by the male hormones like testosterone produced in the testicles need to be retained, vasectomy is preferred to castration in wild animals.

Procedure

Totally, 24 male black bucks were vasectomised in two phases.

Phase one - two adult animals, aged about 2yr and weighting around 30kg were selected for operation to standardize the tranquilizing and surgical techniques and to study the limitations and related problems peri-operatively.

Each animal was darted with a total dose of 150mg of ketamine hydrochloride (HCl) and 30mg of xylazine HCl. The animals were in complete lateral recumbency with good muscle relaxation within 10min after darting; were shifted to the zoo hospital and intravenous fluids were administered throughout the surgical procedure.

Surgical site was prepared aseptically and the spermatic cords were exteriorized from the separate incisions on the caudo-dorsal aspect of the scrotum. A small nick was made on the tunica vaginalis exactly over the vas deferens and later was separated from the mesorchium. A centimeter of vas deferens was excised and the cut ends were ligated with '0' catgut. The skin incisions were closed with '0' vicryl. A single dose of long acting oxytetracycline was injected intramuscularly and the animals were shifted back to the main enclosure.

One of the animal showed head righting reflex in 40min and complete recovery within 45min. Another animal, which required an additional dose of 50mg ketamine HCl, showed head righting reflex in one-and-a-half hour and required 3hr for complete recovery. Both the animals were alert and active by the next day and further observation for a period of 4 months did not reveal any surgical related problems.

Phase two - 22 Black Bucks (2 sub-adults and 20 adults) were vasectomised following the same procedure as in phase one along with special arrangements made in the animal enclosure. Corners of the enclosure were covered with tree branches to act as camouflage for easy darting, a makeshift operation theater was arranged to reduce the duration of anesthesia required for to-and-fro shifting of the animals from main enclosure to the hospital and a barricaded small isolation area was constructed to keep the operated animals under close observation for 7-10 days and left ear of all the animals was notched for future identification. The operation was conducted in batches of 3-5 animals over a period of three months.