

ANAESTHESIA IN THE RIVER TURTLE (CHELONAIIA)

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ABSTRACT

Surgical anesthesia for chelonia (turtle), weighting between 6-10 kg. Was achieved with the injectable pentobarbital and ketamine hydrochloride. Induction of duration and recovery of individual turtles.

Limited data are available regarding dosages and responses for injectable anesthetics a many reptiles. The varied results using different dosage levels and routes of administration for pentobarbital and ketamine HCl.

The purpose of the present study was to report anaesthetic dosages and responses for turtles.

INTRODUCTION

There are thirteen families of chelonia, containing a round 244 species. Chelonia success is due to a combination of standard reptilian characteristics (Conservation of water and cleidotoc egg) plus a rigid body wall or shell consisting of upper carapace and lower plastron. This obvious physical adaptation makes clinical examination difficult especially with larger and recalcitrant individuals. (1, 2,3).

Basic anatomy:

The chelonia have a standard body plan a few obvious to differences to other reptiles. The scapula (shoulder blade) has rotated around the thorax (chest) and lies in a ventral position, The ribs are uniquely modified to form bony plates that comprise the structure of the carapace and plastron.

There are four limbs, each covered in heavy scales. The head is retractable and the cervical vertebrae fuse into the carapacial shell. The tail is used to differentiate the sexes. It is invariably larger in the male with the cloacal orifice located from the tip (8).

The eyes are situated laterally on the head and are protected by a mucous membrane covered 3rd eyelid and two eyelids, only the lower eyelids is mobile. No lachrymal during appears to be present therefore excess overflows from the lower lid:

The appendicular skeleton consists of: front – legs: humerus, radius, ulna, carpus and 5 digits ending in claws. Hind limb Femurs, tibia, fibula, tarsus digits and 4 claws. Chelonia have two ventral vena cavae with have an anastomosis roughly at the middle of the abdominal plate.

Chelonia are very tolerant of anoxia and can tolerate high lactic acid levels – Respiratory function in reptiles is controlled by pO₂ temperature – Therefore maintaining reptiles in a high O₂.

Chelonia have a three chambered heart (two atria, one ventricle). The ventricle functionally separates the pulmonary and systemic blood flows at systole.

MATERIALS AND METHODS

Turtles used in this study was part of the stock of rivers. The turtles were maintained in concrete tank. Surgical procedure were conducted in a open – air building.

Sodium pentobarbital 30 mg /kg B.W. was administered Iv through the dorsal cervical sinus to 6 turtles. The time need was 30 – 40 second for an approximate 10 – ml injection. But the best dosage of sodium pentobarbital is 8 –12 mg/ kg B.W. IV due to the induction at a bout 14 minute.

Ketamine HCL 40 mg/ kg B.W. IP was administered to 6 turtles weighting 6 – 10 kg each two turtles injectable via IP, IV, Im routes.

The induction time, the length of surgical anesthesia and recovery time was measures in all turtles. The time between administration of the anaesthetic and deep anesthesia. Deep or surgical anesthesia has no voluntary muscular response to surgical procedures.

RESULTS

The 3 turtles given sodium pentobarbital were anaesthetized at the rate of 10 – 26 mg/ kg of body weight, and 3 turtles approximately 10 mg / kg B.W. induced deep anesthesia, but initial dosages varied from it. Correlation between total anaesthetic administered and time of induction for those turtles in which dose lasted 40 – 60 minutes. Total recovery occurred within 4 – 6 hours. Routes and of administration for ketamine HCL varied among 6 turtles. For 4 of totally anesthesia was achieved, occurred within 2 – 10 minutes after final injection and total recovery occurred within 4 hours.

Two turtles in intravenous dose 19- 36 mg/kg B. W., other two turtles in injectable 60 – 80 mg / kg B.W. and other two turtles given in dose 35 –70 mg/ kg B.W. in deep anesthesia. (All of the 6 turtles given ketamine but in varied routes).

The successful deep anesthesia at dose of routes of injectable pentobarbital of ketamine as following.

Table 1: Parameter for drug used to anesthesia

No. of turtles	Drug	Dosage mg / kg	Route	Induction time
6	Sodium Pentobarbital	8 –12	IV	14 –100
6	Ketamine HCL	35 –70	IV	2 – 10

DISCUSSION

Results of table –1- indicated that sodium pentobarbital can be used as an effective anesthesia in large turtles species (1, 2). An initial dosage of 10 mg / kg B.W. iv route is suggested but the disadvantage kept out of water for 24 hours until recovery is complete and induction time may be extended up to 60 minutes it generally longer than for ketamine HCL (5).

But ketamine Hcl has a rapid induction time, short duration and rapid recovery. It appears surgical induction is often easier than iv injection (3, 6).

The long period of recovery from anesthesia due to very low metabolic rate in chelonia (4, 6, 7).

Ketamine is probably the anaesthetic agent of choice although in dose not produce muscle relaxation. It may be given in doses of 60 – 80 mg / kg B.W. into gluteal muscle. Recovery from a dose of 60 mg / kg B.W., ketamine takes up 24 hours.

تخدير السلحفاة النهريّة

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الخلاصة

تم في هذه الدراسة تخدير السلحفاة النهريّة باستخدام نوعين من مواد التخدير (مجموعة املاح الباربيجورث والكيثامين) كل على حدة، وملاحظة مدى سرعة احداث التخدير والسدخول بطور التخدير الجراحي، فترة الأفاقة، اوزان السلاحف 6 - 10 كغم تم استخدام طرق إعطاء مختلفة، الكيثامين افضل مخدر مقارنة مع الباربيجورث. الغرض من هذه الدراسة هو تسجيل الجرعة المناسبة ومدى الاستجابة للمخدر المستعمل.

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