

Repeated use of the GnRH analogue deslorelin to down-regulate reproduction in male cheetahs (*Acinonyx jubatus*)

H.J. Bertschinger^{a,*}, M. Jago^{b,1}, J.O. Nöthling^{c,2}, A. Human^a

^a *Veterinary Wildlife Unit, Faculty of Veterinary Science, University of Pretoria, Private Bag X04, Onderstepoort 0110, South Africa*

^b *Otjiwarongo Veterinary Clinic, P.O. Box 1488 Otjiwarongo, Namibia*

^c *Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, Private Bag X04, Onderstepoort 0110, South Africa*

Abstract

The GnRH analogue deslorelin, as a subcutaneous implant, was initially developed in Australia as an ovulation-inducing agent in mares. Its uses, for the suppression of reproduction in the domestic dog and cat and in other species, including humans, have been developed subsequently. Such implants have been used as a contraceptive modality in a variety of wild carnivores, both males and females. This paper describes the use of deslorelin implants as a contraceptive agent for cheetah males maintained in a semi-captive environment and housed in various camps together with females. Annually, male cheetahs were treated for 1 ($n = 2$), 2 ($n = 7$), 3 ($n = 9$), 4 ($n = 3$) or 5 ($n = 1$) consecutive years with an implant containing 4.7, 5.0 or 6.0 mg of deslorelin. On the first day of treatment and then on an annual basis, blood testosterone concentrations were analysed, testicular measurements were taken, appearance of penile spikes was determined, and semen was collected and evaluated. Pregnancy rates of mated or inseminated females were determined. A dose of 6 mg of deslorelin suppressed reproduction for at least 1 year, whereas with 4.7 and 5 mg of deslorelin, 3 of 17 males had a few non-motile spermatozoa in their ejaculates. All testosterone concentrations were basal at 1 year post-implant and no side effects were observed. We concluded that deslorelin implantation, at a dose of 6 mg, was a safe and reliable method of annual contraception in male cheetahs.

© 2006 Elsevier Inc. All rights reserved.

Keywords: Deslorelin; GnRH; Down-regulation; Contraception; Cheetah

1. Introduction

Population control by means of contraception has become an important tool in the management of wild carnivores in southern Africa. In most cases, especially

with endangered species like the cheetah and African wild dog, a reversible method is required. The GnRH analogue, deslorelin, in a long-acting biocompatible subcutaneous implant (Peptech Animal Health, Sydney), was initially developed in Australia as an ovulation-inducing agent in mares. Its uses, for the control of reproduction in the domestic dog and cat and in other species, including humans, have been developed subsequently [1,2]. It has also been used as a contraceptive agent in a variety of wild carnivores, both males and females [3,4]. Contrary to the side effects reported in some female carnivores treated with gestagen implants [5], no adverse side effects have

* Corresponding author. Tel.: +27 12 529 8214; fax: +27 12 529 4314.

E-mail addresses: henk.bertschinger@up.ac.za (H.J. Bertschinger), afrijago@africa.com.na (M. Jago), johan.noethling@up.ac.za (J.O. Nöthling).

¹ Tel.: +264 651 303 242; fax: +264 651 304 382.

² Tel.: +27 12 529 8020; fax: +27 12 529 4314.

Table 1
Twelve cheetahs treated with 5 mg (2001) or 4.7 mg (2002–2004) deslorelin implants annually for 3 years

Observation	Cheetah ID and age during first examination in 2001											
	AJ3, 9 years	AJ132, 5 years	AJ133, 5 years	AJ138, 8.5 years	AJ187, 5 years	AJ225, 3.5 years	AJ226, 3.5 years	AJ227, 3.5 years	AJ255, 3.5 years	AJ256, 3 years	AJ259, 9 years	AJ261, 5 years
February 2001, Time 0												
R testis (mm)	25 × 19	27 × 19	27 × 17	26 × 19	25 × 18	27 × 19	30 × 20	25 × 20	27 × 19	23 × 16	29 × 19	27 × 19
L testis (mm)	27 × 19	27 × 19	27 × 18	26 × 18	29 × 18	31 × 18	29 × 21	27 × 20	26 × 18	24 × 17	24 × 20	28 × 17
Testosterone (nmol/L)	3.43	5.37	8.81	3.5	6.45	0	9.66	4.01	0.36	6.86	7.45	11.68
Penile spikes	3	3	3	3	3	3	3	3	3	3	3	3
Sperm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Few ^a	Yes	Yes	Yes	Yes
Body weight (kg)	31	43	40	56	55	48	47	47	40	36	50	45
March 2002, Time 1												
R testis mm	24 × 16	25 × 18	24 × 17	24 × 19	25 × 17	24 × 18	26 × 15	22 × 14	24 × 19	17 × 11	22 × 17	24 × 18
L testis mm	24 × 16	26 × 18	25 × 17	24 × 19	24 × 18	23 × 17	24 × 14	22 × 14	23 × 19	17 × 12	21 × 17	23 × 17
Testosterone (nmol/L)	0	0.47	0	0.67	0	0	0.96	0	0	0	1.32	0
Penile spikes	2	3	2	2	2	2	2	1	2	1	2	2
Sperm	Few	Yes	None	None	None	Few ^a	Few ^a	None	Yes	None	None	Yes
Body weight (kg)	32	41	38	54	55	45.5	45	44	37	34	43	41
February 2003, Time 2												
R testis mm	21 × 16	21 × 12	23 × 12	20 × 13	20 × 12	21 × 12	18 × 13	19 × 16	20 × 13	18 × 11	16 × 14	18 × 12
L testis mm	22 × 16	20 × 12	21 × 13	20 × 14	22 × 12	20 × 12	20 × 14	19 × 14	19 × 12	17 × 12	17 × 14	17 × 12
Testosterone (nmol/L)	0.06	0	0	0	0	0	0	0	0	0	0	0
Penile spikes	2	1	1	2	1	1	1	1	2	2	1	1
Sperm	None	None	None	None	None	None	None	None	None	None	None	None
Body weight (kg)	31	40	38	54	57	47.5	46.5	46	38	35	44	45
March 2004, Time 3												
R testis mm	20 × 17	17 × 12	16 × 12	20 × 13	19 × 13	24 × 18	21 × 15	19 × 15	20 × 13	18 × 13	18 × 13	18 × 14
L testis mm	19 × 17	17 × 12	17 × 12	20 × 14	18 × 13	21 × 15	20 × 14	20 × 15	19 × 13	19 × 13	19 × 14	18 × 14
Testosterone (nmol/L)	0	0	0	0	0	0	0	0	0	0	0	3.27
Penile spikes	2	1	1	1	1	1	1	1	1	1	1	2
Sperm	Debris	None	None	None	None	None	None	None	None	None	None	None
Body weight (kg)	35	42	39	50.5	52	48	46	45	39.5	37	45	46

Penile spikes: 1 = poorly developed, 2 = moderately developed, 3 = prominent. Note: penile spikes cannot disappear once they have been formed, their size is regulated by androgens. Yes = presence of normal sperm cells.

^a Dead sperm.

Download English Version:

<https://daneshyari.com/en/article/2096787>

Download Persian Version:

<https://daneshyari.com/article/2096787>

[Daneshyari.com](https://daneshyari.com)