Gonadotrophin-Releasing Hormone Agonists and Other Contraceptive Medications in Exotic Companion Animals

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KEYWORDS

• Deslorelin • Neutering • HPG-axis • GnRH A-SRI • Small mammal • Avian • Reptile

KEY POINTS

- The gonadotrophin-releasing hormone agonist slow-release implant (GnRH A-SRI) containing deslorelin has a contraceptive action in ferrets, rats, parrots, chicken, quail, pigeons, and female iguanas.
- The use of the GnRH A-SRI containing deslorelin is associated with the development of histopathological changes to the uterus in rabbits and guinea pigs.
- The duration of action of the GnRH A-SRI containing deslorelin in birds is much shorter compared with those in ferrets, rats, and iguanas.
- The efficacy of the GnRH A-SRI containing deslorelin can best be established through hormone analysis and evaluation of the reproductive organs.

INTRODUCTION

Gonadotrophin-releasing hormone (GnRH) is a decapeptide that is produced in the hypothalamus. Through the hypothalamic–hypophysial portal system this hormone is transported to the anterior pituitary gland where it stimulates the release of the gonadotrophins, luteinizing hormone (LH) and follicle stimulating hormone (FSH). The gonadotrophins, in turn, stimulate the release of either testosterone or estradiol, depending on the gender of the animal. A negative feedback mechanism, whereby testosterone or estradiol suppress the release of both GnRH and the gonadotrophins, is in place to assure that only the required amount of hormones is released (**Fig. 1**).

More than 2000 different analogues of GnRH have been synthesised,[1] of which deslorelin ([d-Trp6, Pro9−des-Gly10–NH2]GnRH-ethylamide) is one of the more potent analogues.[2] This agonist is thought to have a potency 100 times greater than that of GnRH.[2] The other commonly used long-acting GnRH analogue in exotic

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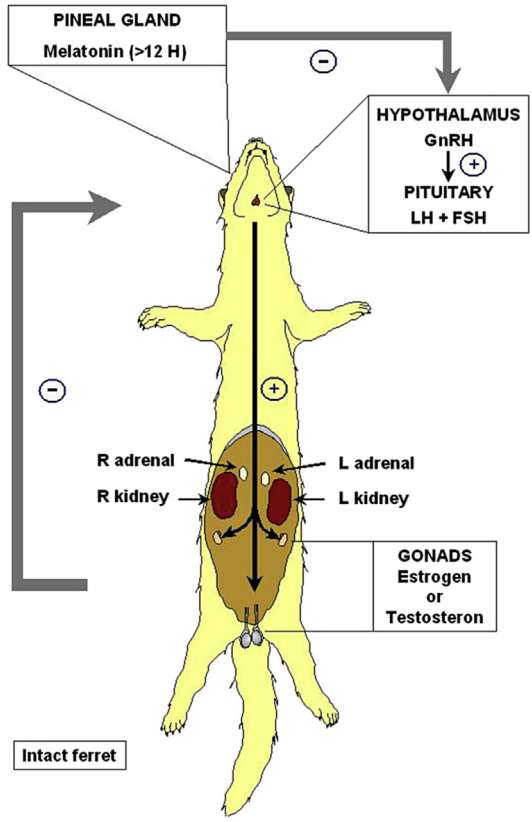

Fig. 1. Within the hypothalamus-pituitary-gonadal axis, GnRH is released in the hypothalamus and stimulates the secretion of the pituitary-derived gonadotrophins, LH and FSH. The gonadotrophins then stimulate the production of testosterone (male) or estradiol (female) in the gonads. The latter hormones insert a negative feedback action on the release of GnRH, LH, and FSH. L, left; R, right.

companion animals is leuprolide acetate. This analogue is registered for use in people with sex hormone–related disorders[3] and contains biodegradable microspheres, which continuously release leuprolide acetate over a certain amount of time.[4] In addition to stimulating the release of gonadotrophins, GnRH analogues may also suppress the release of gonadotrophins, which renders them potential agents to be used as contraceptive agents (see *Mode of Action of a Gonadotrophin-Releasing Hormone Agonist Slow Release Implant*).[2]

This review article mainly focuses on the use of the GnRH agonist slow-release-implant (GnRH A-SLI) containing deslorelin, describing its use in different animals. In case the GnRH A-SLI is not suitable for the species, and alternatives are available, these are briefly discussed. Surgical options for contraception are considered to be outside of the scope of this review and are, therefore, not reviewed.

GONADOTROPHIN-RELEASING HORMONE AGONIST SLOW RELEASE IMPLANT

Although the commercially available GnRH A-SLI containing deslorelin (Suprelorin) is the only one currently on the market, other pharmaceutical companies have