ABSTRACTS

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**Introduction**

Pulsatile administration of GnRH causes increases in LH similar to the pulses that normally occur at the end of proestrus. Deslorelin, a D-Trp\(^6\)-Pro\(^9\)-des-Gly\(^{10}\)GnRH analogue, was used as a novel contraceptive in dogs. Preliminary experiments with deslorelin induced fertile estrus in anestrous bitches. However, all of the bitches that became pregnant during the induced estrus subsequently aborted, presumably due to the continuous release of deslorelin from the implants, causing down-regulation of the pituitary GnRH receptors, followed by a deficiency in LH that is necessary to maintain luteal function during the second half of pregnancy. The hypothesis tested in this study was that the continuous administration of deslorelin (Ovuplant\(^®\), Ayerst Animal Health) for a short duration would induce fertile estrus in the anestrous bitch without suppressing subsequent luteal function.

**Materials and methods**

Anestrous beagle bitches received one Ovuplant\(^®\) in the subcutaneous tissue between the shoulder blades (group 1; n=8) or beneath the vestibular mucosa (group 2; n=14). In 6 bitches from group 2, implants were removed when their serum progesterone concentrations (P4) first exceeded 2 ng/mL. Bitches were examined daily for vulvar swelling and discharge and daily vaginal cytology was used to define the onset of cytologic diestrus (D1). Artificial inseminations were performed during estrus. P4 was measured every 2-7 days. Serum deslorelin was measured on days 1, 4, 7, 14 and 21 (group 1) and days 1, 4, 7, 10, 13, and 16 (group 2) after implant administration. Weekly transabdominal ultrasonography was performed for pregnancy diagnosis and fetal monitoring. Data reported as mean±SD.

**Results**

All bitches came into estrus. For groups 1 and 2, the intervals from implant administration to proestrus were 6.1±2.6 and 6 days; from implant administration to LH surge were 10.5±2.9 and 10.1±1.6 days; and from implant administration to cytologic diestrus were 16.7±2.7 and 16.7±1.5 days, respectively. Based on P4, one bitch from each group failed to ovulate and premature luteal failure (PLF) occurred in 2 pregnant bitches from group 1 and 1 non-pregnant bitch from group 2. Seven days after implant administration, deslorelin concentrations were 487±83 and 534±253 pg/mL in groups 1 and 2, respectively. In bitches with PLF, maximum deslorelin concentrations exceeded 840 pg/mL. Two bitches from group 1 still had deslorelin concentrations >300 pg/mL 21 days after implant administration. Of the bitches that ovulated, 43-71% became pregnant (group 1: 3 of 7; group 2: 5 of 7).

**Discussion**

Administration and removal of implants were easy and free of complications. Ovuplant\(^®\) rapidly and reliably induced estrus. The drug release rate from the implant varied and was much longer than expected. Administration into the vestibular mucosa induced a more synchronous estrus, presumably due to a faster and more uniform absorption of deslorelin from the implant. Chronic administration of GnRH results in decreased LH release, luteal responsiveness to LH and P4 secretion. Luteal failure in this experiment is therefore likely to have been caused by prolonged release of deslorelin. Ovuplant\(^®\) removal following the LH surge reduced the incidence of premature luteal failure.
References