Deslorelin implants are suitable for contraception in female, but not male guinea pigs

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Guinea pigs are one of the most popular pet animals nowadays. Although animals of the same sex can be kept together, they are usually housed in mixed groups. Neutering of males is frequently performed for reproduction control in these groups and to suppress territorial aggression. Females, however, are usually neutered for medical reasons, like ovarian cysts. Similar to other rodents, the anaesthetic risk is relatively high indicating a need for non-surgical alternatives. GnRH agonist implants have been proven to be suitable for contraception in male and female dogs, cats and ferrets as well as female rabbits and various wildlife animal species. Consequently, we aimed for investigating the efficacy of a slow release GnRH agonist implant containing 4.7 mg deslorelin (Suprelorin®, Virbac, Germany) for contraception in adult guinea pigs. Four female (Group 1A) and five male intact guinea pigs (Group 2A) were treated subcutaneously with a Suprelorin® implant into the umbilical area. Five females (Group 1B) and three males (Group 2B) served as untreated controls. Clinical and gynaecological/andrological examinations as well as ultrasound for determination of ovarian/testicular volume were performed on days 0, 56, 91, 126, 161 and 196. Additionally, blood samples were taken from the V. auricularis for hormone analyses. To test for reproductive specific behaviours, deslorelin-treated animals were co-housed with untreated individuals for 3 hours on days 56, 91, 126. From day 161 onwards, treated animals were housed pairwise with untreated animals for 3 weeks to test for fertility. Male guinea pigs were castrated on day 196 and testes and epididymides were processed for further histological examinations. Statistical analysis (two factorial ANOVA with repeated measures “time”) was performed using BMDP/Dynamic, Release 8.1 to test for differences in hormone concentrations between treated and untreated groups. Results were considered to be statistically significant at P < 0.05. Treatment had no influence on general condition and development in male and female guinea pigs; minor injection site issues were observed in three females of Group 1A only. In female guinea pigs, serum estradiol-17β (E2) and progesterone (P4) concentrations differed significantly between groups (E2: p=0.03, P4: p<0.001) and over time (E2: p<0.01, P4: p<0.0001). Additionally, a significant interaction between group and time was identified (E2: p<0.01, P4: p<0.0001). From day 56 onwards, progesterone concentrations were basal or below the detection limit. None of the treated females conceived, whereas all untreated females got pregnant after mating. In male guinea pigs, treatment had no effect on testicular volume, male behaviour and T concentrations. Furthermore, all females mated with deslorelin-treated males got pregnant. The observation that treatment had no effect on fertility was confirmed by histology as all males had normal spermatogenesis and spermatozoa in epididymal sections. The results indicate that slow release GnRH agonist implants are suitable for contraception in female, but not in male guinea pigs.