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Combination of intrauterine insemination and nonsteroidal anti-inflammatory drugs administration is efficient method of achieving pregnancies in normal and subfertile bitches

Wojciech Nizanski, Honorata Bodnar, Hanna Mila, Marta Gotowiecka

Department of Reproduction, Wrocław University of Environmental and Life Sciences,
Poland

wojtek.nizanski@gmail.com

Intrauterine insemination is a good tool of achieving pregnancies in cases of subnormal semen quality in dogs. However in cases of uterine pathologies, the success of this technique is reduced. Semen deposition into the genital tract triggers the uterine response associated with polymorphonuclear neutrophils (PMNs) influx. PMNs reduce the ability of sperm to attach uterine epithelium.¹ It was reported that in >25% of subfertile CEH bitches develop post-insemination inflammation of endometrium.² We hypothesized that administration of non-steroid inflammatory drugs (NSAIDs) at the time of insemination and implantation may be effective in obtaining conception and maintaining of pregnancy in normal and subfertile bitches. The aim of our study was to compare the effectiveness of intrauterine vaginoscopic insemination performed in normal fertile bitches and in problematic females medicated at peri-ovulatory and peri-implantation period with the use of NSAIDs. The study was performed on 63 bitches of different breeds inseminated in Wrocław Department of Reproduction on 2013-2015. The age of bitches varied 2 to 7 years (mean 4.8±2.1). Females were divided into 2 groups. Group I (n=40) consisted of normal bitches with history of previous pregnancies and without any problems with conception and delivery, and Group II (n=33) consisted of problematic bitches-females with history of 3 recent unsuccessful consecutive attempts to achieve pregnancy in 3 sequential cycles and signs of mild CEH, and post-insemination subtle genital inflammation. These cases were considered as subfertility of uterine origin. Bitches were artificially inseminated (AI) with fresh semen of 58 male dogs of proved fertility (mated successfully other bitches at the time of AI). All semen samples were examined before insemination and were found to be normal (>70% by CASA and >70% of morphologically normal sperm). The AIs were performed with the use of ureterorenoscope (STORZ GmbH, Germany) at 3rd and 5th days of estrous cycle. NSAID (meloxicam, Meloxidyl 1.5mg/mL, oral suspension for dogs, Ceva) at dose 0.2mg/kg bw orally was administered at 2, 3, 4 days (perioovulatory) and 15, 16 and 17 days (perimplantation) of estrous cycle. The pregnancy length in Groups I and II were 60.5±2 days and 61.2±3 days, respectively. In Group I 23 eutocias and 10 C-sections were reported. In Group II 4 eutocias, 2 C-sections were performed. In 2 cases ecbolec therapy of uterine inertia was applied. The pregnancy rates in Group I and II were 82.5% (33/40) and 43.0% (10/23), respectively (p<0.05). The whelping rates in these groups were 100.0% and 80.0%. The sizes of litter born in Groups I and II were 7.2±3.4 and 6.8±4.5, respectively. The number of puppies weaned in Groups I and II were: 6.6 ±3.4 and 5.6±3.7. It may be concluded that the procedure of combination of vaginoscopic intrauterine insemination with NSAIDs administration at AI and implantation is very efficient method of obtaining of litters in normal fertile bitches and may serve as good tool of achieving pregnancies in cases of subfertility of uterine origin. The modification of physiological function of genital tract by deposition of semen deeply into lumen of the uterus combined with subtle anti-inflammatory and immunomodulatory action of NSAIDs will be investigated.

[1] England GCW, Russo M, Freeman SL. The bitch uterine response to semen deposition and its modification by male accessory gland secretions. *Vet J* 2012;195:179-184.

[2] England GCW, Burgess CM, Freeman SL. Perturbed sperm-epithelial interaction bitches with mating-induced endometritis. *Vet J* 2012;194:314-318.