

EFFECT OF SITE OF INSEMINATION ON BOVINE FERTILITY

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Özet: Bu çalışmada, suni tohumlama yapılan inek ve düvelerde sperma bırakılma yerinin gebelik oranları üzerine etkisi araştırıldı. Çalışmada 82 baş inek ve 18 baş düve olmak üzere toplam 100 baş hayvan cervical, corpus uteri, Graaf follikülünün lokalizasyonuna göre ipsilateral ve kontralateral cornu tohumlama bölgesi olmak üzere 4 eşit gruba ayrılarak tohumlandılar. Gebelik oranları gruplarda sırasıyla %88, %72, %84 ve %72 olarak tespit edildi. Sonuç olarak, spermanın corpus uteri veya ipsilateral cornuya depo edilmesinin gebelik oranını arttırdığı, cervical yolla tohumlamanın herhangi bir avantajı olmadığı kanısına varıldı.

Anahtar kelimeler : İnek, sperma, bırakılma yeri, gebelik oranı

Summary: Effect of site of semen deposition on pregnancy rates of artificially inseminated cattle were investigated. A total of 100 animals, 82 cows and 18 heifers, were divided into four groups and inseminated by depositing semen into corpus or cervix of the uterus or ipsi- or contralateral horn to the Graffian follicle. Pregnancy rates were 88, 72, 84 and 72 %, respectively. It was concluded that deposition of the semen into corpus uteri or ipsilateral horn to the ovulatory follicle increase pregnancy rates with AI and cervix uteri does not appear to be advantageous target for cattle.

Key words : Bovine, semen deposition, pregnancy rate

Introduction

Since artificial insemination (AI) had been employed on commercial bovine herds many reports have been released suggesting different sites of genital tract for the semen deposition. In 1950's intracervical deposition of semen was being regarded as more advantageous compared to intra-uterine deposition method (Steward and Melrose, 1952). After a few years Olds et al. (1953) and Macpherson (1968) recommended uterine body for the deposition of semen. More recently, Mitchell et al. (1985) reported that approximately 60% of spermatozoa deposited into the uterine body were lost by mucous discharge from the genital tract. Senger et al. (1988) expressed that conception rates were improved when cornual insemination was employed and, that cornual insemination provides an alternative to insemination in uterine body. Williams et al. (1987)

suggested that cornual insemination does not result in uterine trauma or bacterial contamination and endometrium is capable of regeneration after trauma during estrus. Momont et al. (1989) concluded that cornual insemination has no advantage over insemination in the uterine body for increasing the pregnancy rates.

The objective of the present study was to determine the effect of site of semen deposition on pregnancy rates of cattle.

Materials and Methods

A total of 100 cattle, 82 cows and 18 heifers, aged between 1.5-6 years old were selected from the animals which were brought to the Artificial Insemination Clinic for AI service. Those animals were selected based on the criterions listed below. a) no dystochia and retained fetal membranes in previous calving b) no prulent discharge during va-

ginal examination c) completed 50 to 90 days postpartum d) having palpable ovulatory follicle at the time of AI and that uterus returned its pre-gestational size and situation e) no AI or mating after previous calving.

Selected animals were randomly divided into four groups, 25 animals per group, to inseminate by depositing semen to the following four localizations. 1) uterine body insemination; deposition of semen into corpus uteri 2) ipsilateral cornual insemination; deposition of semen into cornu uteri which is adjacent to ovulatory follicle containing ovary 3) contralateral cornual insemination; deposition of semen into cornu uteri which is contralateral to ovulatory follicle containing ovary 4) cervical insemination; deposition of semen into mid-cervix uteri. All inseminations were performed by two inseminators by frozen-thawed semen in 0.25 ml of straws from proven bulls. Pregnant animals were detected by rectal palpation 60-90 days after inseminations.

Data were analysed by Chi-square analyses to compare pregnancy rates in percentage between groups.

Results and Discussion

Pregnancy rates with the regards to semen deposition sites are submitted in table 1. The highest pregnancy rate was obtained by the deposition of the semen into uterine body. However, no significant difference in pregnancy rates was detected between cows inseminated into ipsilateral horn and uterine body. This data is in agreement with the findings of McKenna et al. (1990) who reported that non-return rates were similar in cows inseminated into uterine body and cornu uteri. Gallagher and Senger (1987) pointed out that site of seminal deposition, horn or body of the uterus, does not influence the back up of spermatozoa into the vagina. Pregnancy rates achieved by contralateral cornual and cervical deposition in this study are significantly lower compared to those obtained by ipsilateral cornual and uterine body inseminations. This finding is in consonance with the reports of Senger et al. (1987) who suggested that cornual insemination increases conception rates over uterine body inseminations in dairy cattle.

Table 1. Pregnancy rates with regards to different sites of semen deposition in cattle.

Site of semen deposition	Inseminated animals	Pregnant animals	Pregnancy rate (%)
Uterine body	25	22	88.0 ^a
Ipsilateral horn	25	21	84.0 ^a
Contralateral horn	25	18	72.0 ^b
Cervix uteri	25	18	72.0 ^b

Different superscripts in column differ significantly ($p < 0.05$)

Contrarily, Momont et al. (1989) suggested that pregnancy rates for ipsilateral and contralateral inseminations were equal.

In conclusion, deposition of the semen into corpus or ipsilateral horn of the uterus increased pregnancy rates with AI and cervix uteri does not appear to be advantageous target for cattle.

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