

عنوان مقاله:

Effects of estradiol and oxytocin injection on the efficiency of artificial insemination in Iranian Zel ewes during the breeding season

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تعداد صفحات اصل مقاله: 9

نویسندگان:

Afshin Seifi-Jamadi - *Department of Animal Sciences, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran*

Reza Masoudi - *Department of Animal Sciences, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran*

A.R. Hosseinzadeh Aski - *Department of Animal Sciences, Faculty of Agriculture, Islamic Azad University, Ghaemshahr Branch, Ghaemshahr, Iran*

Hamid Kohram - *Department of Animal Sciences, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran; Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization, Tehran, Iran*

Mohsen Sharafi - *Department of Animal Sciences, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran; Department of Poultry Sciences, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran*

Seyed Danial Moein Aledavoud - *Department of Poultry Sciences, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran*

Hassan sadeghipanah - *Department of Animal Sciences, Faculty of Agriculture, Islamic Azad University, Ghaemshahr Branch, Ghaemshahr, Iran*

خلاصه مقاله:

In sheep industry, pregnancy rate after artificial insemination (AI) declines due to the complex anatomy of the cervix in ewes, such that it might prevent effective intrauterine insemination. At estrus, cervical relaxation occurs to some degree in ewes, which is regulated by the changes in the levels of reproductive hormones. This study aimed to evaluate the effects of estradiol and intravenous (IV) or intramuscular (IM) oxytocin injection at different doses on the cervical opening and pregnancy rate of Iranian Zel ewes during the breeding season. For this purpose, three experiments were conducted on ۱۲۰ ewes (۳-۴ years old, weighing ۴۷ ± ۲.۵ kg). In the first experiment, ewes were equally assigned to two groups to receive estradiol (۱۰۰-۲۰۰ µg). After ۱۲ h, each group was equally divided into six subgroups ($n=۲۰$) and received ۵۰, ۱۰۰ and ۱۵۰ IU oxytocin via IV and IM injection. Cervical opening was measured before and ۱۵ min and ۱۲ h after estradiol injection and ۲۰ min after oxytocin administration. In the second experiment, we only assessed the effect of oxytocin administration on cervical opening similar to the first experiment. In the third experiment, controlled internal drug release (CIDR) was used in all the ewes for ۱۲ days to induce estrus

synchronization. Afterwards, the ewes received 550 IU intrauterine equine chorionic gonadotropin at the time of CIDR removal. Before AI, ewes were equally categorized into three groups (n=40); the first group was considered as control, and the other two groups received 100 IU oxytocin via IM or IV injection. At 24 h after CIDR removal, all ewes were inseminated transcervically using diluted fresh semen. Pregnancy was detected via ultrasound 50 days after insemination, and lambing and twinning rates were measured after parturition. Results of the first and second experiment indicated that estradiol injection had no effect on cervical opening ($P>0.05$), while the administration of 100 or 150 IU oxytocin (IV or IM) could dilate the cervix with or without estradiol ($P<0.05$). Furthermore, administration of 100 IU oxytocin (IV or IM) in the third experiment improved pregnancy and lambing rates compared to the control group ($P<0.05$); however, it had no effect on the twinning rate of the ewes ($P>0.05$). According to the results, IV or IM injection of oxytocin could improve the pregnancy rate in Iranian Zel ewes through the dilation of cervical canal. Therefore, it is suggested that this method be applied to enhance the pregnancy rate of ewes during the breeding season.

کلمات کلیدی:

Cervical dilation, Estradiol, Oxytocin, Pregnancy rate, artificial insemination

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