Bovine Polyclonal Anti-eCG and eCG Combinated Vaginal Sponges Progesterone to Induce Estrus and Pregnancy of Etawa Crossbred Goats

Herry Agoes Hermadi[1], Sunaryo Hadi Warsito[2]

[1]Professor, [2]Lecturer, Department of Veterinary Reproduction, Faculty of Veterinary Medicine, Universitas Airlangga, Surabaya, Indonesia

Abstract

Equine chorionic gonadotropin (eCG) like folligon is a gonadotropin hormon derived from blood sera in pregnant mare 30 till 140 days. The repeated use of eCG treatments for the induction of ovulation is generally followed can decrease in fertility. Bovine anti-eCG antibodies (Abs) as research result in Universitas Airlangga in 2019 can solve the problem of decrease in fertility in does. The objective of this study was to evaluate the reproductive performance of subjected to a short-term protocol for estrus induction using 50 mg of vaginal sponges' progesterone. The experimental animal used in this study comprised of 30 etawa Crossbred goats, with normal estrus cycle and 3 years old of age. The etawa crossbred goat are all healthy with a body score of at least three. 30 goats divided become 3 groups Group I as (T0) 10 goats are as controls Groups. (T0) was inserted sponge progesterone 50 mg of MPA and injected with PGF2α 7.5 mg in day 10 intramuscular (im) when T0 removal of the sponge were removed on day 11. Does on day 11 as T1 going on the removal of devices 24 h before removal inject 7.5 mg of PGF2α and 300 IU of eCG. T2 were injected in all the goats 7.5 mg of PGF2α, 300 IU of eCG at day 10 and 300 IU bovine anti eCG inject at day 11 when removal device on day 11. After 35 days, pregnancy was diagnosed by ultrasound scanning. Short-term protocols using either an intravaginal device was similarly effective to estrus induction 100% p >0.05, and all goats from both groups had estrus manifestation within 30 h after device removal, duration of estrus 37 h and doing AI. In addition, no significant difference in pregnancy p >0.05 on 35 days.

Keywords: *Animal breeding; etawa crossbred goats; progesterone; reproductive synchronization of estrus and pregnancy*

Introduction

The etawa goat could be a goat imported from India which is additionally called the Jamnapari goat. The tallness of male goat's ranges from 90 centimeters to 127 centimeters and the females as it were reach 92 centimeters. Male weights can reach 91 kilograms, whereas females as it were reach 63 kilograms. His ears were long and hang down. Arched brow and nose. Both male and female with brief horns. This sort of goat is able to create milk up to three liters per day. The crossover breed (half breed) of etawa goats with neighborhood goats is known as "Peranakan Etawa" or "PE" goats. PE goats are nearly the same estimate as etawa cross bred but are more versatile to Indonesia's nearby environment.

The synchronization dairy goats have been done in France that has been success in estrus and pregnancy rates greater than 65% then the condition is continued by artificial insemination with quality cement and experienced inseminator. Strategies which use progesterone or its analogs are based on their impacts within the luteal stage of the cycle reenacting the activity of characteristic progesterone delivered by the corpus luteum after ovulation[1,2,3,4,5]. Utilize of prostaglandins is an elective strategy for controlling generation by disposing of the corpus and actuating luteum an ensuing follicular stage with ovulation (the following, however, the study distinguishes the use of progesterone ear

Corresponding author:
Herry Agoes Hermadi
herrypro59@yahoo.com

implants from commercial intravaginal progesterone devices as a material for estrus synchronization. It turned out that the results showed no difference between the use of progesterone devices and ear implants in demonstrating the success of estrus and pregnancy as equally great[6].

Cloprostenol in cycling goats using luteolysis may be induced by inject of PGF2α (2.5–5 mg, IM) as early as day 3. cloprostenol PGF2α (≥15 mg) In sheep is effective after day 5 of the cycle of estrus is day 0. Technical estrus synchronized by two doses of cloprostenol, 7–9 days apart in ewes 11–13 days apart in does. impregnated intravaginal sponges (medroxyprogesterone or fluorgestone) have been used resources for control of ovulation. Controlled internal drug release (CIDR) intravaginal plastic device impregnated with progesterone (300 mg) and vaginal sponge 50 mg MPA be synchronized in cyclic or anestrous does and ewes by administration of progestagens[7]. In small ruminants also be used CIDR to insert in the vagina for 7 days, and inject luteolytic as PGF2α 1 day before removal and estrus response is high within 72 hr[8]. Characteristics of goats when estrus is screaming while actively moving the base of the tail at the injection of 300 IU eCG combined with PGF 10 mg 24 hours before the removal of intra vaginal progesterone, at 43 to 45 hours after the removal of intra vaginal sponge devices these signs appear very lustrous dominant. If the granting of 300 IU eCG compared with 400 to 500 IU combined with PGF there is no real difference for the onset of estrus[9]. The use of eCG on an ongoing basis can cause anti-body in livestock which results in a decrease in the potential of eCG for its use. For this reason, it is necessary to neutralize the anti-body anti-eCG against eCG's ability to increase ovulation. If we inject eCG the same as we give antigens into the animal's body where the high molecular weight of about 60 kda can cause anti-body against eCG which if the next use occurs can affect the fertility of the livestock itself[10]. Polyclonal anti eCG bovine can be obtained when we inject superovulation doses with the help of active and active ingredients can be harvested polyclonal antibodies from bovine that are mass produced at the Faculty of Veterinary Medicine, Universitas Airlangga, Indonesia, which first carried out the expansion of 1: 1 supreme charcoal and ethanol in 4°C ultra-centrifuge and filtered by CM Sephadex G-100 coloums chromatography[11].

Materials and Methods

The experimental animal use in the study is 30 Etawa crossbred goats. The goat has bred seen in its horns and teeth, with a body condition score of 3. The goat has been examined for its health in a healthy reproductive condition. The age of the experimental animal is around 3 years. 30 goats divided become 3 groups Group I as (T0) 10 goats are as controls Groups. (T0) was inserted sponge progesterone 50 mg of MPA and injected with PGF2α 7.5 mg in day 10 intramuscular (i.m.) when T0 removal of the sponge were removed on day 11. Does on day 11 as T1 going on the removal of devices 24 h before removal inject 7.5 mg of PGF2α and 300 IU of eCG. T2 were injected in all the goats 7.5 mg of PGF2α, 300 IU of eCG at day 10 and 300 IU bovine anti eCG inject at day 11 when removal device on day 11. After 35 days, pregnancy was diagnosed by ultrasound scanning. Dosage and administration to increase of fertility rate hormon form Intervet Holland named as Folligon 300 IU by i.m. route[12], bovine anti sera eCG 300 IU production from Universitas Airlangga research results and PGF2 7.5 mgSome types of data analysis that will be used are: Analysis of Variance Analysis (ANOVA) and Honest Difference Test (SPSS 22)[13] for duration of estrus and time of estrus data. The test result is significant if $p < 0.05$.

Results and Discussion

The key to this study is the role of Bovine polyclonal anti eCG obtained from the follicular eCG immunization in bulls which can be used to neutralize the negative effects of eCG. eCG can cause anti-body if injected into various animals, such as injected in goats can cause an antigen antibody reaction where a large molecular weight of about 60 kda can be considered as an antigen. Harvesting anti-body in goats with immunization model can be used to neutralize the anti-body in a humorous manner referred to as anti-body polyclonal abpo if in goats the name goat polyclonal anti-body[14]. Likewise, if eCG is injected at high doses or deserves to be called a superovulation dose, the commercialized adjuvant and body harvest can be done gradually once a week, repeated eCG treatments induce highly variable humoral immune responses among individual ewes; Significant associations were found between the anti-eCG response phenotype and some MHC class II alleles[15].

Treatment with P4 for 5 d was as effective as for 12 d to induce fertile estrus in FSH-treated anestrous

ewes[16], research on goats takes 10 days for removal of a progesterone 50 mg, the device as carried out in this study uses the same dose in Cross Bred Goats etawa[17]. The sialic acid content in eCG has a different effect than the anti-eCG Abs on eCG bioactivity can be explained by two hypotheses. The steric inhibition of the interaction of eCG with its receptors explains the inhibitory effect of some anti-eCG abs; the second way of working there is a conformational change in eCG by anti-eCG Abs bias through induction of inhibition or acceleration of the potentiation of the eCG bioactivity. It is important that this modulation of the eCG bioactivity by the anti-eCG Abs impacts primarily on the FSH bioactivity of eCG, which is very important and we know the effect of FSH to grow follicles on the surface of the ovaries[2]. eCG against anti body gonadotropins were created, it can moreover be normally emitted to humoral safe reaction to endogenous, exogenous gonadotropins. Developmentr of against gonadotropins movement, there's along absent until to go therapeutic anti body target can be reach the advertise[3]. The time of estrus When the device removed in general estrus response is high within 72 hr[4].

The effect of eCG treatment on pregnancy rates in synchronized heifers using norgestomet ear implants removed on day 10 and the sign of estrus will be shown at 56 h (18). As well as progestagen-[7] or prostaglandin-treated ewes[18]. In this way, the combination of PGF2 amid the early luteal stage with the male effect 'may be satisfactory elective for synchronizing oestrus earlier to artificial insemination within the nonappearance of past oestrus detection[10]. Using PGF the changeability within the timing of ovulation after treatment may be indeed more decreased by applying the 'male effect' coincidentally with the moment PGF2 treatment. The 'male effect', in spite of the fact that commonly utilized for actuating LH surge and ovulation amid regular anoestrus, moreover increments LH discharge, amid the breeding season, in cycling[11].

The result showed in the table are Estrus rate, 100% showed estrous response in all control group animals and this treatment showed a combination of vaginal sponge progesterone PGF2α, eCG and eCG antibody as well as the estrus deposition in goat time of estrus. When the device removed an average of 30 hours lasted and the duration of estrus was 37 hours. When we associate with sharing opinions on some of the results of the study are as follows: pGF2α with intra-vaginal progesterone sponge and its combination with eCG can sufficiently increase estrus synchronization and some reproductive and productive properties in Bark sheep by up to 95%. Real-time ultrasound scanning (US) via the transrectal route, pregnancy diagnosis, the present paper is to compare the accuracy of diagnosis of pregnancy using transrectal US Canary dairy goats were synchronized with an 11-day progesterone intravaginal) sponge followed by PGF2α and eCG 2 days before sponges' withdrawal. on Days 20, 22, 24, and 26 after mating.

Table 1. Bovine polyclonal anti eCG and eCG combinated vaginal sponges' progesterone to induce estrus and pregnancy of etawa crossbred goats.

Group of treatments	T0 (Deviceprog PGF2α)	T1 (Device prog PGF2α, eCG)	T2 (Device prog PGF2α, eCG anti eCG)
Number of Etawa Crossbred Goats	10	10	10
Duration of estrus (h) ±S.D.	37.00 ± 4.09	37.00±12.06	37.0 ± 11.3
Estrus rate %	100.00 (10/10)	100.00 (10/10)	100.00 (10/10)
Time of estrus When the device removed	30.8 ± 12.0	30.11 ± 13.8	30.03 ± 8.09
Pregnancy rate %	50.00 (5/10)	50.00 (5/10)	60.00 (6/10)

*The treatment has no effect on the measured variable (p >0.05).

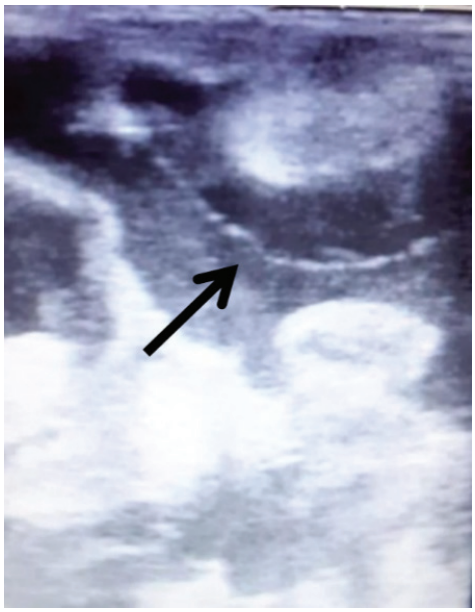

Figure 1. The result of pregnancy 35-day detection via ultrasonography showed.

Conclusion

In summary, based on the comes approximately of this ask, can be concluded that the eCG, bovine against sera eCG and PGF2α combination can increase the rate of estrus and pregnancy in etawa crossbred goats. Injected of eCG measurements of 300 IU and 300 IU eCG + sera eCG im has showed up no differences in p >0.05 ubsequently, utilizing of 300 IU eCG + bovine against sera eCG is surveyed to amplify the rate of estrus and pregnancy in etawa crossbred goats.

Conflict of Interest : The author declare that they have no conflict of interest.

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