



RESEARCH ARTICLE

EFFECT OF ADMINISTRATION OF BURSELIN ACETATE ON DIFFERENT DAYS OF ESTROUS CYCLE IN GRADED MURRAHA BUFFALOES

¹B.ChandraPrasad and ²K.Ananda Rao

¹Scientist, Buffalo Research station

²Senior Scientist &Head, Buffalo Research station,Venkataramanagudem,West Godavari,Andhra pradesh -534101,India

ARTICLE INFO

Article History:

Received 15th, August, 2014

Received in revised form 21st, August, 2014

Accepted 16th, September, 2014

Published online 28th, September, 2014

Key words:

Buffalo,Gnrh,Different days,Conception rate

ABSTRACT

This paper aims to describe the reproductive performance after administration of gonadotropin releasing hormone(Receptal) on day 0th,5th and 12th of estrous cycle period.36 repeat breeding buffaloes were divided into four groups I,II,III and IV.Group IV was kept as control and Group I,II,III were administered with GNRH on days 0,5, and 12.Results showed that conception rates in Group I,II,III and IV were 5(55.5%),four (44.4%), six(66.6%) and 3(33.3%)respectively

© Copy Right, IJRSR, 2014, Academic Journals. All rights reserved.

INTRODUCTION

Reproduction in buffalos had decreased tremendously due to irregular ovulation and early embryonic deaths. At least twenty five percent of embryos are lost during the first three weeks of pregnancy (Peters,1996) .Improper estrous detection, silent heat are the major concerns in buffalo reproduction due to which inter-calving period is increased. Two of the most consistent causes of repeat breeding were reduced rates of fertilization and embryonic survival (Tanabe et al, 1985).GnRH injection leads to LH secretion which causes luteinization and then progesterone secretion. For this reason, GnRH treatments have been used to prevent embryonic death because of luteal deficiency (Sheldon and Dobson, 1993).Willard et al (2003) stated that injection of GNRH during mid luteal phase after insemination induces sufficient release of LH and FSH to increase the life span of corpus luteum by counteracting luteolysis through disruption of normal follicular growth and secretion of estrogen, thereby permitting maternal recognition of pregnancy to occur. The granulose cells simultaneously hypertrophy or luteinize to form large luteal cells (Guraya, 1978) which on day 5 of sexual cycle in buffalo fill the major portion of follicular cavity and ovulation opening(Danell,1987).

MATERIALS AND METHODS

Location and Duration of study

This study was conducted at Buffalo Research Station, venkataramanagudem, West Godavari, Andhra Pradesh for a period of four months. All the animals are managed under uniform conditions and feeding at Buffalo Research Station, Venkataramanagudem , West Godavari , Andhra Pradesh. India

A total of 36 repeat breeding buffaloes are divided in to four groups of eight each. All the animals are managed under uniform conditions and feeding at Buffalo Research Station, venkataramanagudem , West Godavari , Andhra Pradesh. The routine feeding consisted of green fodder, dry fodder and concentrate. All the animals other than control group were

administered with Receptal (Burselin acetate inj.),Mfd.Intervet co each ml consisting of 0.0042mg/ml.

Group I were injected with 5ml (0.021mg) of receptal(Intervet) on day 0 and the animals **Group II** were injected with 5ml (0.021mg) of receptal on day 5 and the animals

Group III were injected with 5ml (0.021mg) of receptal on day 12 and

Group IV was kept as control. All the animals were examined per rectal for pregnancy diagnosis after 60 days.

RESULTS

Out of eight animals that are injected with GNRH at the time of artificial insemination 5 (55.5%) animals became pregnant in group I. In group II four (37.5%) animals became pregnant In group III six(66.6) animals became pregnant and 3(33.3%) in group IV

DISCUSSION

These findings showed that conception rate in group I were in accordance to that of findings reported by Jaswal and Singh(2010) who reported 48.8% in repeat breeding crossbred cows and 41.17% in group II cows. Conception rate of 70% was reported by Zaiuddin et al (2014) in repeat breeding buffaloes when administered at the time of artificial insemination. Jaswal and Singh (2013) reported conception rate of 65.27% in dairy cows that were administered on day 12, which were similar to present recordings.. Whereas, Mandal et al.,(2004) reported 75% of conception in buffaloes treated with GNRH on day 12 which were slightly higher than present observations.

Embryonic mortality is one of the predominant causes for repeat breeding in dairy animals (Diskin and Morris ,2008)Majority of embryonic mortality (70-80% of total loss) occurs between days 8 and 16 after insemination (Santos et.al.2004). GnRH injection at dioestrus promoted formation of an accessory CL by causing ovulation or luteinization (40% ovulation and 60% luteinization) of the existing dominant

follicle in the ovaries (Bulbul et al. 2009).The luteinization of granulosa is regulated by GONADOTROPHIN(especially LH) and blood vascularity transporting oxygen, nutrients and hormones(Niswender and Nett 1994).

Injection of GnRH on days 11 to 14 after artificial insemination in lactating cows increased serum progesterone level (Howard et al., 2006). Positive effect of GnRH at the time of artificial insemination is mediated by the improved ovulation rate (Yaniz et al.2004).Administration of GnRH on day 5 or 6 after estrous was found to alter follicular dynamics ,induce luteal tissue development and increase progesterone concentration up to day 13 resulting in increased pregnancy rate(Arnett et al 2002)

De Rensis and Peters (1999) reported that treatment with GnRH during the luteal phase may stimulate transformation of small luteal cells to large luteal cells and seems to prolong CL lifespan by partially protecting the CL against spontaneous luteolysis. GnRH also promotes formation of an accessory CL when injected at dioestrus (Stevenson et al. 1996).

This experiment showed that administration of GnRH increased THE CONCEPTION RATE AND MAXIMUM CONCEPTION RATE WAS NOTICED WHEN rate and administered on 12th day.

References

Arnett, M.,Rhiehart, J.,Barley, J. D. ,Highstone, R. B. and Anderson, L. H.2002. Administration of GnRH on day 5 or 6 of the estrous cycle alters follicle dynamics and increase pregnancy rate in beef cattle.Journal of Animal Science., 80:133-34

Bulbul, B., Kirbas, M., Kose, M., Dursun, S. and Colak, M.2009) The affects of ovsynch started in different phases of oestrus cycle on oestrus synchronization in cows. Istanbul Univ Vet Fak Derg., 35: 7-17

Danell, B.1987.Oestrous behaviour ,ovarian morphology and cyclical variation in follicular system and endocrine pattern in water buffalo heifers”Ph.D thesis .pp1-124,Swedish University of Agricultural Sciences ,Uppsala,Sweden.

De Rensis, F., Peters, A.R.,1999. The control of follicular dynamics by PGF2 , GnRH, hCG and oestrus synchronization in cattle. Reprod. Dom. Anim., 34: 49-59

Diskin,M.G. and Morris, D. G.2008. Embryonic and early foetal losses in cattle and other ruminants.Reproduction Domestic animals .,43,260-267.

Gaurya,S.S.1978. Recent advances in the morphology ,histochemistry and biochemistry of bovine ovarian components and steroid biosynthesis. J.Anim.Morph .Physiol,Silver jubilee.,33:86-103

Howard, J. M., Manzo,R., Dalton,J.C., Frago,F. and Ahmadzadeh,A. 2006. Conception rates and serum progesterone concentrations in dairy cattle administered gonadotropin releasing hormone 5 days after artificial insemination. Anim. Reprod. Sci., 95: 224-33

Jaswal, R. S. and Madhumeet Singh. 2010. The effect of administration of Burselin acetate on different days of estrous cycle on conception in repeat breeder dairy cows.The blue cross book25.48-50

Jaswal, R. S. and Singh, M.2013.The effect of administration of gonadotropin releasing hormone analogue at estrous or during luteal phase on reproductive performance of dairy cows maintained under subtemperate climate .Iranian journal of veterinary Research ,Vol 14:pp 57-60

Mandal, D. D.,Srivatava, S. K. and Kumar. P.2004.Effect of day of GnRH administration on concpetion rate in buffaloes .Indian journal on Animal Science 74,1189-1191.

Niswender, G.D. and Nett, T.M.1994.The corpusluteum and its control in infraprimates species.In “The physiology of reproduction”(E.Knobil J.D Neil et. al.,Eds).2nd Edition ,vol 1:781-816

Peters, A. R.1996. Embryonic mortality in the cow. Animal breed. Abstract.,64:587-598

Santos JE,Thatcher WW,Chebel RC,Cerri RL and Galvao KN.2004.The effect of embryonic death rates in cattle on the efficacy of estrous synchronization programmes.Animal Reproduction sciences 82/83:513-535

Sheldon, M. and Dobson, H. 1993. Effects of gonadotrophin releasing hormone administered 11 days after insemination on the pregnancy rates of cattle to the first and later services. Vet Rec 133: 160-163

Stevenson,J.S., Kobayashi, Y., Shipka, M.P., Rauchholz, K.C. 1996. Altering conception of dairy cattle by gonadotropin- releasing hormone preceding luteolysis induced by prostaglandin F2 . J Dairy Sci. 79: 402-410

Tanabe, T.Y., Hawk, H.W. and Hasler, J.F. 1985 .comparative fertility of normal and repeatbreeding cows as embryo recipients.Theriogenology 23:687-696

Willard, S., Gandy, S., Bowers,S., Graves, K.,Elias,A. and Whisnant,C. 2003. The effects of GnRH administration post insemination on serum concentrations of progesterone and pregnancy rates in dairy cattle exposed to mild summer heat stress. Theriogenology, 59: 1799-1810.

Yaniz, J. L .,Murugavel, K. and Lopez –Gatius, F.2004.Recent developments in estrous synchronization of postpartum dairy cows with and without ovarian disorders.Reproduction in domestic animals 39:86-93

Zakiuddin, Md.,Tandle, M. K.,Usturge, S.M.,Patil,N. A.,Kasralikar, K.,Dilipkumar, D. and Surangi, M. D.2014.Therapeutic management of repeat breeding buffaloes using herbal and herbal and hormonal preparations .Nataln symposium on “Frontier reproductive biotechnologies for enhancing animal fertility and fecundity “:global perspectiveXXIX Annual convection of Hissar .Nagpur.pp123
