Available online at www.pelagiaresearchlibrary.com

Pelagia Research Library

Advances in Applied Science Research, 2011, 2 (5):385-387

Pelagia Research Library

ISSN: 0976-8610
CODEN (USA): AASRFC

Reproductive response of buffaloes following induction of superovulation with gonadotrophin

Shyam Shankar Jha*

Department of Animal Breeding and Biotechnology, Institute of Agriculture and Animal Science, Rampur Central Campus, Rampur, Chitwan, Nepal

---

ABSTRACT:

Eighteen normally cycling buffalo were used to determine the effectiveness of follicle stimulating hormone (FSH) and pregnant mare serum gonadotrophin (PMSH) as super ovulatory drug. Group A received PMSG (3000 ID) on day 9 while group B received the treatment on day 10 of the cycle.PGF2 alpha were given at 60 and 70 hrs after PMSG and Ovaries were obtained two days after estrus to monitor ovarian response. The study compares the super ovulatory response of buffalo to either PMSG (3000 IU) or PFSH (44 mg) decreasing dose at 12 hrs interval. Treatment were initiated on day 9-10 PGF2 alpha on 60 and 72 hr after gonadotrophin ,as on Ist 12 and 24 hours after estrus are embryo collected on days 5 after A.I. Superovulatory treatment initiated either on day 9 or 10 were similar in refered to number of ovulation are no of follicle. PFSH treatment result to more ovulation (2.86±1.57) are collected embryo (2.0±2.0 than PMSG (1.5±2.0).Both drug were effective in induction of multiple ovulation but a more favorable result was exhibited with FSH treatment.

Key words: Buffaloes, Super Ovulatory Response, Follicle Stimulating Hormone, Pregnant Mare Serum Gonadotrophin,

---

INTRODUCTION

Embryo transfer technique in buffalos was derived from those in cattle. However, the success rate is much lower in buffalos, due to their inherent lower fertility and poor superovulatory response [1,2]. Even treatment of gonadotrophin at level above what have been prove effective in cows ,resulted to poor ovarian response in buffalo [3].The number of follicles that develop in response to gonadotrophin stimulation is a function of quantity of follicles in the ovarian pool.The proper time to inhibit gonadotrophin stimulation is also important as the growth and development of ovarian follicles occur In wave as reported in cattle [4].Moreover the type of gonadotophin used for superovulatory treatment have been reputed to affect not only ovulation

but also embryo quantity [5]. PMSG still present after ovulation could have a deleterious effect on the quality of embryos by stimulating steroid secretion. However. the development of anti-PMSG, which has been applied in cattle and administered at the time of estrus, can improve the efficiency of PMSG and the quality of transferable embryos [6]. Comparatively, FSH stimulation of ovaries results in more ovulation and recovery of embryos of better quality than with PMSG [7].Therefore to induce superovulatory treatment in appropriate gonadotrophin to be use.

MATERIALS AND METHODS

Eighteen mature and regularly cycling murrah buffaloes with the age ranged from 8-10 years were used.The animal were treated with FSH or PMSG. FSH(44 mg) given in decreasing rate for 4 days inititate on day 9 while PMSG(3000 IU) single injection on day 10.PGF2 alpha were given 60 hours after initial pFSH or PMSG treatment followed by another dose 12 hours later.Ovulation were detected 5 days after estrus through rectal palpation.The recovered embryo were immediately transferred into medium with 20%.Foetal calf serum were graded for their quality under stereomicroscope.

RESULTS AND DISCUSSION

Buffalo treated with PMSG or FSH had an average ovulation of 2.8±1.57 and 1.5±1.0 respectively shown in table no:1.This observation are very close to reputed by Mishra *et al* [8].

Table No:1 Buffalo treated with PMSG or FSH with average ovulation

Mean ±SD	Treatment	
	PFSH	PMSG
Ovulation	2.86±1.57	1.5±1.0
Unovulated follicle	2.28±1.79	2.0±1.41
Embryo recorded	2.0±2.08	0.0

The average unovulated follicle were 2.28±1.79 and 2.0±1.41 in FSH and PMSG treated animal respectively shown in above table. Thus result was less than those obtained then FSH directed buffaloes Hguyen *et al* with 4.8 follicles or those treated with PMSG with average of 5.0±1.7 follicles. It was very difficult to determine the exact no of corpora lutea due to small ovaries of buffalo particularly when ovulation exceed 5 and when corpora lutea where accompanied by several large follicles. Moreover, the buffalo is small and deeply embedded and fused. The average embryo recovered from PFSH treated buffaloes were 2.0±2.08.while none from PMSG treated animal shown in table no :2

Table No:2 Embryo recovery from PFSH or PMG treated

Treatment	N	Total no of Ovulation	Total no of Embryo recovered
PFSH	7	20	14
PMSG	4	6	0

The absorption is similar with data obtained as an average 1.36 embryo from 73 buffaloes where as Yadav *et al* [9] obtained 0.583±0.34 from 12 buffaloes. Overall mean number of recovered embryos in superovulated group was 1.33±0.18.This was higher than 0.05 embryos which

previously reported by Ismail *et al*. [10] and lower than two embryos [11] and four embryos. In this study, the very low embryo recovery rate in relation to the number of ovulation may be due to inability of fimbria to trap ova from enlarged superovulatory ovary [12], difficulties in locating hatched blastocytes [13] and premature entry of ova /embryos into the uterus, resulting into their expulsion [14].

CONCLUSION

It shows that PFSH is better superovulatory hormone than PMSG.PMSG treatment has always been associated with high incidence of unovulated follicle and thus with a lower embryo yield. Earlier report also indicated that response to PFSH were 91.2% compared to only 80.8% from PMSG treatment in a large scale trial .Improvement in embryo recovery and embryo quality following PMG treatment may be achieved with the use of PMG antiserum as shown in cattle. On the other hand the development of new purified FSH preparation has further improved the consistency of ovulatory response in buffalo. This come in the form of 600mg NIH-FSH PI administered in 10 divided and decreasing doses at an interval of 12 hours. This is followed by PGF2 alpha administered 72 hours after initiation of superovulatory treatment. Both gonadotrophin PFSH or PMSG were effective inducing multiple ovulation but more favorable result was PFSH treatment.

REFERENCES

[1] M.Techakumphu, Y. Sukawong and M. Intraramongkol, *J. Vet Med. Sci.*, **2001**, 63,853-857.
[2] R.S. Manik, P. Palta, S.K. Singla, M.N. Sharma, *J. Reprod. Fert.*, **2002**,14, 315-325.
[3] Drost et al., *Bulagrian .therio*., **1988**,30,4
[4] L.knop, J.P. kastelic, E.Schallenberger, O.J.ginther,*Dom.Anima.Endocrinol* ,**1989**,6,111-119
[5] Walton and stubbings studies on the factor affecting the yield embryo by superovulated Holstein fresian cow.therio,**1986**.26,161-165
[6] J. saumande, D. chupin, *Theriogenology*, **1981**, 15,108
[7] C.H. Karaivanov. *Theriogenology*, **1986**, 26, 51-61
[8] A.K. Mishra,M.C.Yada, K.T Motwani.Proc.Second world buffalo congress,New Delhi, **1988**,56
[9] N.C.Yadav,A.K.Mishra,K.T.Motwani,S.Kangawa,B.V.Joshi.,Proc.Second World Buffalo Congress,New Delhi,**1988**,56
[10] S. T. Ismail, M. Y. Abboud, M. S. Twafik., Proc 4th Annual Egyptian Soc. Anim. Repro. Fert. Cong., Cairo, Egypt, **1992**,39-49
[11] E.R.Schallenberger,E.R.Wagner,P.Papa,H.Hartl,H.Tenhumberg.,*Theriogeneology*,**1990**,34,379-392
[12] J.Hesheng.Y.Wei,X.Hao.Proc.,5th Asian Buffalo Congress,Nanning,China,**2006**,53-58
[13] N.Ullah,R.W.Wright,A.Mehmood,S.M Baig.,*Buffalo.J.*,**1992**,1:47-56
[14] A.Alexiev,K.Vlakhov,C.H.Karaivanov,D.kacheva.,2nd World Buffalo Congress,New Delhi,**1988**,591-595