



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2019; 7(1): 1961-1962

© 2019 IJCS

Received: 16-11-2018

Accepted: 20-12-2018

Dhrubajyoti Borpujari

PhD Scholar, Deptt of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, Assam, India

Fazal Ali Ahmed

Professor & Head, Deptt of Animal Reproduction, Gynaecology and Obstetrics College of Veterinary Science and A.H., Central Agricultural University, Selesih, Aizawl, Mizoram, India

K Lalrintluanga

Professor, Deptt of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Science and A.H., Central Agricultural University, Selesih, Aizawl, Mizoram, India

Dibyajyoti Talukdar

Assistant Professor, Deptt of Animal Reproduction, Gynaecology and Obstetrics College of Veterinary Science and A.H., Central Agricultural University, Selesih, Aizawl, Mizoram, India

Kutubuddin Ahmed

Professor & Head, Deptt of Animal Reproduction, Gynaecology and Obstetrics College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, Assam, India

Correspondence**Dhrubajyoti Borpujari**

PhD Scholar, Deptt of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati, Assam, India

Efficacy of Ovsynch and Ovsynch based GnRH treatments on conception rate in postpartum anestrus crossbred cows

Dhrubajyoti Borpujari, Fazal Ali Ahmed, K Lalrintluanga, Dibyajyoti Talukdar and Kutubuddin Ahmed

Abstract

A total of forty (40) numbers of apparently healthy postpartum crossbred cows of 1st to 4th parity with normal calving history and free from any immediate post-parturient complications were selected to study the efficacy of Ovsynch and Ovsynch based GnRH (G6G) treatments on conception rate. The animals were divided equally into two groups, i.e., Group A and Group B for the therapeutic management. All the experimental cows were maintained under standard feeding and managerial conditions. The study was carried out at the Department of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Sciences & Animal Husbandry, Central Agricultural University, Selesih, Mizoram. The conception rate for group A and Group B were 40 and 60 per cent respectively. So, in conclusion the Conception rate for Group B i.e., G6G protocol was higher than the Group A i.e., Ovsynch protocol.

Keywords: Ovsynch, G6G, cross bred cow, postpartum anestrus, conception rate

Introduction

Agriculture is the prime source of livelihood for majority of rural population in India. India is the highest producer of milk in the world and dairy industry is the mainstay of Indian agricultural growth. It plays a major role in the economy of India including North-Eastern Region. As per the 19th Livestock Census of India, total bovine population of Mizoram is recorded as 43,034 and constitutes one of the largest number of all the livestock population. Among the domesticated animals, cattle is one of the most commonly reared animal in Mizoram and plays a very important role for upliftment of economic status of marginal farmers. The total milk production from cattle alone is 13629.752 metric ton and the beef production is 3458.995 metric ton.

Reproductive performance is one of the important factors determining the profitability of dairy herds. Postpartum anestrus is the period after parturition during which cows do not show behavioural signs of estrus. An extended calving interval is a major component of poor reproductive efficiency and is generally attributed to low fertility. If the cow does not show regular estrus, conceive at the optimal time and deliver a healthy calf each year, the profitability and sustainability of the farm is compromised [1].

The most common synchronization schemes in cows and buffaloes are limited to prostaglandin, GnRH and/or progestogen protocols. However, the variations with these approaches range from non-responsiveness to variability in time from treatment to oestrus and ovulation and / or ovulation of an aged oocyte. It is necessary to control follicular wave dynamics as well as luteal function in order to have a healthy dominant follicle (DF) present at the end of treatment [2a].

Ovsynch protocol of estrus synchronization includes two GnRH injections were given at 9 days apart at the dose rate of 10 µg total dose and one injection of PGF_{2α} was given after 6 days of the first injection of GnRH i.e., on the 7th day at the dose rate of 500 µg total dose. 16-24 hours after the 2nd injection of GnRH FTAI was performed [2b]. Ovsynch protocols in lactating dairy cattle have resulted in pregnancy rates (defined as the number of pregnant cows over the number treated or eligible) similar to those obtained after AI with estrus detection [2c]. However, conception rate is usually lower in Ovsynch-treated cows because ovulation is not adequately synchronized in approximately one-third of the animals. In cows treated with the Ovsynch protocol 11% ovulated before TAI, 15% did not respond to treatment with PGF_{2α},

and 9% did not ovulate after the second treatment with GnRH [3], which indicated that synchronization rate (defined as cows that had a regressed CL and ovulated within 24 h after TAI) was only 68% [4a] developed a presynchronization protocol that combines PGF and GnRH to increase the percentage of animals that respond to the first GnRH injection of the Ovsynch protocol by increasing the probability of an ovulatory-sized follicle at that time.

Materials and Method

Forty numbers of apparently healthy crossbred cows of 1st to 4th parity with normal calving history and free from any immediate post-parturient complications were selected for the study. All the experimental cows were maintained under standard feeding and managemental conditions. The study was carried out in the Department of Animal Reproduction, Gynaecology and Obstetrics, College of Veterinary Sciences & Animal Husbandry, Central Agricultural University, Selesih, Mizoram, India.

All the cows were divided into two groups (Group A and Group B) comprising 20 cows in each group. In the Group A, cows were examined by rectal palpation and then treated with ovsynch protocol in which two GnRH injections were given at 9 days apart at the dose rate of 10µg total dose and one injection of PGF_{2α} was given after 6 days of the first injection of GnRH i.e., on the 7th day at the dose rate of 500µg total dose. 16-24 hours after the 2nd injection of GnRH FTAI was performed [2d]. The cows in the Group B were treated with G6G protocol after per rectal examination. In this protocol the animals were presynched with Prostaglandin and GnRH. To presynch the animal one GnRH injection was given 6 days earlier to the 1st GnRH injection of Ovsynch Protocol and a single PGF_{2α} injection was given 8 days before the 1st GnRH injection of Ovsynch Protocol. After presynchronization of the animals Ovsynch protocol was followed [5]. All the cows of the two groups were observed for the absence of external signs of estrus after AI and pregnancy was confirmed by rectal examination on day 60 post AI. Conception rate was calculated as number of cows conceived to AI divided by number of cows treated in each experimental group and multiplied by 100 and it was expressed in percentage.

Results and Discussion

The conception rate in postpartum anestrous crossbred cows were presented in Table 1.

Bello *et al.* in the year 2006 [4b] reported that the pregnancy rates in lactating cows were 50.00 per cent after G6G treatment and which is higher than the cows treated with Ovsynch protocol (27.00 per cent) which matches with the present study as during presynchronisation most of the animals are in day 5 today 12 of estrus cycle. Pre-synchronization with 2 doses of PGF, 14 d apart, and administration of the first GnRH 12 d after the second PGF increase the probability that a LH-responsive follicle will be present at the time of the first GnRH studies and thus the pregnancy rate following TAI was higher in cows treated with the "G6G" than in those treated with "Ovsynch" alone.

Conclusion

The conception rate was higher in G6G protocol in comparison to ovsynch protocol in postpartum anoestrus crossbred cows. So, G6G protocol is a better protocol of synchronisation compared to ovsynch protocol.

Table 1: Conception rate

Group	Total no. of animals	No. of animal conceived	Conception (%)
A	20	8	40
B	20	12	60

References

1. Hare EHDN, Norman HD, Wright JR. Trends in calving ages and calving intervals for dairy cattle breeds in the United States. *Journal of Dairy Science*. 2006; 89(1):365-370.
2. 2(a, b, c & d) Pursley JR, Mee MO, Wiltbank MC. Synchronization of ovulation in dairy cows using PGF_{2α} and GnRH. *Theriogenology* 1995; 52:1067-1078.
3. Colazo MG, Gordon MB, Rajamahendran R, Mapletoft RJ, Ambrose DJ. Pregnancy rates to timed artificial insemination in dairy cows treated with gonadotropin-releasing hormone or porcine luteinizing hormone. *Theriogenology*. 2009; 72(2):262-270.
4. 4(a&b) Bello NM, Steibel JP, Pursley JR. Optimizing ovulation to first GnRH improved outcomes to each hormonal injection of ovsynch in lactating dairy cows. *Journal of Dairy Science*. 2006; 89:3413-3424.
5. Yilmaz C, Yilmaz O, Ucar M. Effect of PGF_{2α} and GnRH injections applied before Ovsynch on pregnancy rates in cows and heifers. *Kafkas Univ Vet Fak Derg*. 2011; 17(4):641-644.