



ISSN (E): 2277- 7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2021; SP-10(10): 782-783  
© 2021 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 28-08-2021  
Accepted: 30-09-2021

#### A Murugeppa

Associate Professor and Head,  
Dept of Veterinary Gynaecology  
and Obstetrics, Veterinary  
College, Shivamogga,  
Karnataka, India

#### MK Tandle

Associate Professor and Head,  
Dept of Veterinary Gynaecology  
and Obstetrics, Veterinary  
College, Shivamogga,  
Karnataka, India

#### NB Shridhar

Associate Professor and Head,  
Dept of Veterinary Gynaecology  
and Obstetrics, Veterinary  
College, Shivamogga,  
Karnataka, India

#### A Sahadev

Associate Professor and Head,  
Dept of Veterinary Gynaecology  
and Obstetrics, Veterinary  
College, Shivamogga,  
Karnataka, India

#### Corresponding Author

#### A Murugeppa

Associate Professor and Head,  
Dept of Veterinary Gynaecology  
and Obstetrics, Veterinary  
College, Shivamogga,  
Karnataka, India

## Effect of replacement of hCG with GnRH on day 9 of Ovsynch program in Malnad Gidda cows

A Murugeppa, MK Tandle, NB Shridhar and A Sahadev

### Abstract

The present study was conducted to study the efficacy of GnRH and hCG on Day 9 of Ovsynch synchronization in Malnad Gidda cows. We used total of 66 animals for synchronization, 32 animals were synchronized using regular Ovsynch protocol while 34 were synchronised using hCG on day 9 instead of GnRH. We concluded that both GnRH and hCG could be used with equal efficacy for inducing ovulation.

**Keywords:** hCG, GnRH, Ovsynch, Malnad Gidda

### Introduction

Malnad Gidda cows are an important dwarf cow distributed predominantly in Malnad and adjacent coastal districts of Karnataka viz., Shivamogga, Chikamagalur, Udupi, Mangalore, North Canara and parts of Hassan and Kodagu (Coorg) and Belagavi districts of Karnataka. There are different types of Malnad Gidda varieties or strains having distinct characters and are found to be distinctly different from other breeds in the State of Karnataka, viz., Amruth Mahal, Hallikar, Khillar, Krishna Valley and Deoni (Anon, 2009) [1]. Synchronization of oestrus provides more economic manipulation of the oestrus cycle or induction of oestrus, which returns by improving the production efficiency to bring a large percentage of a group of females into oestrus at a short, predetermined time (Odde, 1990) [2]. Numbers of oestrus synchronization programmes are available in cow based on the use of various hormones like progesterone, PGF<sub>2α</sub> and various combinations with other hormones like estrogen and Gonadotrophin Releasing Hormone (GnRH). Selection of appropriate oestrus synchronization protocol should be made on the basis of management capabilities and expectations of the farmer. Synchronization of oestrus provides more economic manipulation of the oestrus cycle or induction of oestrus, which returns by improving the production efficiency to bring a large percentage of a group of females into oestrus at a short, predetermined time (Odde, 1990) [2]. However, replacement of HCG with GnRH for induction of ovulation has not much studied. In the present study we have compared the efficacy of HCG and GnRH in induction of ovulation in Ovsynch protocol.

### Materials and Methods

The Group I comprised of 32 Malnad Gidda cows. Cows in this group received a dose of GnRH analogue (10 ug/animal, i/m, or 2.5 ml of Gynarich<sup>®</sup>, Buserelin Acetate, 4µg/ml vial, Intas Pharmaceuticals Pvt Ltd, Ahemadabab, India) on day 0 (Day of start of treatment) and synthetic PGF<sub>2α</sub> (500 µg/ animal, i/m, Pragma<sup>®</sup>, Cloprostenol Sodium, 250 µg/ml vial, 10 ml vial, Intas Pharmaceuticals, Pvt Ltd, Ahemadabab, India) i/m on day 7. A second dose of GnRH analogue was administered on day 9 and Fixed Time Artificial Insemination (FTAI) was done after 16-20 h or on day 10. The Group II comprised of 34 repeat breeding Malnad Gidda cows. cows in this group received a dose of GnRH (10 ug/animal i/m, Gynarich<sup>®</sup>, Buserelin Acetate, 4µg/ml vial, Intas Pharmaceuticals Pvt Ltd, Ahemadabab, India) on day 0 (Day of start of treatment) and PGF<sub>2α</sub> (500 µg/ animal, i/m, Pragma<sup>®</sup>, Cloprostenol Sodium, 250 µg/ml vial, 10 ml vial, Intas Pharmaceuticals, Pvt Ltd, Ahemadabad, India) i/m on day 7. On day 9, a dose of hCG was administered (1500 IU, IV, Chorulon<sup>®</sup>, MSD Animal Health Ltd, Pune, India) and insemination was done after at 16-24 h or on day 10. The data was statistically analysed using chi square test using Prism.

## Results and Discussion

The conception rate achieved in different group of Malnad Gidda cows is presented in Table 1. The conception rate in

Group I was 53.33% while in Group II was 64.51%. Even though statistically insignificant, HCG proved to have more conception rate in comparison to GnRH group.

**Table 1:** Conception rate in Cows with Ovsynch protocol with 9<sup>th</sup> day GnRH and HCG injected cows

Group-I (n=32)	GnRH (day 0)-PGF2 $\alpha$ (day 7)- GnRH (day 9)-AI (day 10)	30	16	53.33a
Group-II (n=34)	GnRH (day 0)-PGF2 $\alpha$ (day 7)- hCG (day 9)-AI (day 10)	31	20	64.51 <sup>a</sup>

In the present study, the first protocol in group I consisted of administration of GnRH on day 0, PGF2 $\alpha$  on day 7 followed by administration of another dose of GnRH on day 9 and AI on day 10. In the present study, the percent conception is 53.33 percent which is significantly higher ( $P < 0.05$ ) than that of the control group which is in accordance with the finding of the earlier authors (Ashvinkumar *et al.*, 2018; Vinod *et al.*, 2016) [3, 4]. Similar protocol was also used by Pursley *et al.* (1995) [5] in cow to synchronize the oestrus who also got 55 percent of conception rate in cow. The first dose of GnRH will induce the follicular development with subsequent release of oestrogen. Hence the animal expresses the oestrus, on day 7, a dose of PGF2 $\alpha$  will cause luteolysis and makes the animal to come to oestrus. The increased conception in the treatment compared to the control group might be attributed primarily due to luteolytic action of PGF2 $\alpha$  and GnRH has the property of inducing follicular growth and ovulation. The group II animals administered with first dose of GnRH on day 0, a dose of PGF2 $\alpha$  on day 7 and a dose of hCG on day 9 followed by insemination on day 10. This protocol revealed the conception rate of 64.51 per cent. This is also significantly higher compared to the control group exhibiting the percent conception of 32.14. In this group also, the of GnRH might have released the FSH and LH by which the ovaries become functional and due to release of oestrogen, the animal expresses the oestrus signs. After ovulation, under the influence of LH, the CL might have developed which was knocked down by the administration of PGF2 $\alpha$ . This finding is in accordance with the finding of Pursley *et al.* (1995) [5] who also reported the similar findings. Further, the administration on day 9 might have influenced the ovulation in time and might have increased the conception rate. This finding is in according with Geary *et al.* (2001) [6] who reported that the use of GnRH and hCG will improve the conception rate with PGF2  $\alpha$ . We conclude that both GnRH and hCG could be used for the purpose of inducing ovulation on day 9 in Ovsynch protocol.

- Geary TW, Salverson RR, Whittier JC. Synchronization of ovulation using GnRH or hCG with the co-synch protocol in suckled beef cows. *J Anim. Sci* 2001;79:2536-2541.

## References

- Anonymous. Basic Animal Husbandry Statistics, 2009. Department of Animal Husbandry & Veterinary Services, Karnataka. 2009, 17-18.
- ODDE KG. A review of synchronization of oestrus in postpartum cow. *J. Anim. Sci.* 1990;68(3):817-30.
- Ashvinkumar Chaudhari, Nilufar Haque, Natvarbhaijamnesha, Nikita Bhalakiya, Gaurangkumar Patel, Mahesh Madhavatar *et al.* Synchronization of oestrus : A reproductive management tool in veterinary practice. *Int. J. Curr. Microbiol. App. Sci.* 2018;7:1511-1519.
- Vinod VP, Kaustubh B, Yuvraj G, Hitesh RA, Jayant RK. Factors influencing conception rate of local and crossbred cows. *IOSR J Agri. Vet. Sci* 2016;10:51-54.
- Pursley JR, Mee MO, Wiltbank MC. Synchronization of ovulation in dairy cows using PGF $_{2\alpha}$  and GnRH. *Theriogenol* 1995;44:915-923.