

Management of Some Ovarian Disorders in Post-Partum Crossbred Cows

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Twenty one crossbred (HF x indigenous, Jersey x indigenous) cows, aged between 3- 7 years were found to have ovarian abnormalities (16 cows with smooth ovaries, five cows with cystic ovaries) during a screening of post-partum cows with history of anoestrus, irregular oestrus or conception failure. The findings were confirmed by three consecutive weekly per-rectum examinations. Treatment with Polyherbal formulation (Kantakar, Satavar Patola and Kumari) led to exhibition of oestrus in 75% cows with smooth ovaries. In post-partum cows with cystic ovaries, administration of GnRH 100 mcg IM (day 0) and PGF2 α 20 mg IM (day 7) followed by GnRH 100 mcg IM (day 9) and fixed time AI, (16 h after last GnRH treatment) was effective in resolving cysts and breeding on the induced estrus resulted in 80% conception rate.

KEYWORDS

Cow, ovarian disorder, GnRH, PGF2 α , poly-herbal formulation.

INTRODUCTION

Anoestrus due to smooth ovaries and conception failure due to cystic ovaries are the most common reproductive disorders encountered in dairy cattle leading to prolonged inter calving period and reduced milk yield. Ovarian cysts are anovulatory structures and as long as they persist, cows will remain infertile (Youngquist and Threlfall, 2007). Cystic ovarian disease (COD) is the most common endocrine pathology seen in

dairy cows. Its incidence varies from 1 to 30% depending on herd and breed conditions, Holsteins being the most susceptible breed (Gordon, 1996). Incidence of anoestrus in cattle in Kashmir has been reported as 44.12 % (Shah, 1996).

GnRH and PGF2 α have been used for treatment of cystic ovary with varied results (Antoine and Patabiraman, 1993). Polyherbal formulation containing balanced phytoestrogens have been used to induce oestrus and improve overall breeding efficiency in dairy animals (Shah and Derashri, 1985; Kodagali et. al, 1991 and Nemade et.al, 1994).

During present study, attempts were made to treat smooth ovary condition in crossbred post-partum cows with oral administration of a poly herbal formulation of Kantakar, Satavar, Patola and Kumari. Ovsynch: GnRH - PGF2 α - GnRH treatment protocol was evaluated for its efficiency in treating cystic ovarian conditions in crossbred post-partum cows.

MATERIALS AND METHODS

The study was conducted under field conditions on crossbred cows to detect occurrence of ovarian disorders. Animals with history of post-partum anoestrus, irregular oestrus or conception failure were screened for presence of different ovarian disorders by three consecutive per-rectum and clinical examinations conducted at 7 days interval. A total of twenty one crossbred (HF x indigenous, Jersey x indigenous) cows, aged between 3- 7 years with ovarian abnormalities having apparently normal genital tract, were

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selected and categorized into two groups according to condition of gonads.

Group A comprised post-partum anoestrus ($n=16$) cows with smooth and inactive ovaries. Group B constituted of five number of cows that had cystic ovaries

Each cow of group A was administered a Polyherbal formulation (Kantakar, Satavar, Patola and Kumari), two capsules orally daily for three days. Treatment was repeated after 10 days in non-responsive cows. All the animals were closely watched for estrus signs. Animals which did not respond to two consecutive treatments with poly-herbal formulation were considered non-responsive.

Group B animals were treated for cystic ovary condition as per the Ovsynch: GnRH - PGF 2α - GnRH treatment protocol outlined by López-Gaitán and López-Béjar (2002). The treatment Protocol included administration of GnRH 100 Mcg IM (day 0) and PGF 2 α 20 mg IM (day 7) followed by GnRH 100 Mcg IM (day 9) and fixed time AI, 16 h after last GnRH treatment. All the animals were closely watched for oestrus signs after the treatment was commenced.

RESULTS

Group A: Three consecutive per rectum and clinical examinations conducted at 7 days interval revealed that out of 21 post-partum cows under investigation, 16 cows had smooth ovaries and 5 cows had cystic ovaries. Cows with smooth ovaries showed total cessation of cyclic activity and had not displayed oestrus for last 2 - 4 months. Ovaries were small, smooth and devoid of any palpable evidence of either luteal or follicular activity. Out of 16 anoestrus cows, seven (43.75%) cows showed oestrous symptoms after first treatment with poly-herbal formulation and after repeating the treatment among non-responders total oestrus percentage increased to 75%.

Group B: Five Cows revealed palpable solitary or multiple cysts of varying size on one or both the ovaries. Among these, four cows were nymphomaniac, displaying irregular oestrus

cycles (8-15 days) with long oestrus periods of 48-72 hours. Clinical examination revealed edematous swelling of vulva with copious discharge of clear mucus. One cow on repeated per-rectum examination conducted at 15 days interval revealed thin walled atonic uterus filled with fluid, absence of foetal parts, placentomes, fremitus or whirring of uterine artery and presence of a cyst on ovary. These observations were indicative of mucometra/hydrometra associated with ovarian cyst as described by Robert (1984).

Administration of GnRH and PGF 2α alpha was effective in resolving cysts and breeding on the induced estrus resulted in 80% conception rate

DISCUSSIONS

Treatment with Polyherbal formulation (Kantakar, Satavar, Patola and Kumari) produced oestrus percentage of 75% in anoestrus cows with smooth ovaries. These findings were in line with observations of previous workers where ovarian activity and induction of ovulatory oestrus was achieved in the animals with smooth and inactive ovaries by administration of Polyherbal formulations (Shah and Derashri, 1985; Kodagali et al., 1991; Nemade et al. 1994; Dhoble and Markandeya, 1995; Dhavale et al. 1998 and Uma shanker et.al, 2000). These formulations are potent combinations of herbs formulated scientifically to induce ovarian activity in anoestrus animals. Herbs like Kantakari, Satavar, Patola and Kumari used during present study have a potential oestrogenic and aphrodisiac properties (Ghani, 1998; Pandey et.al 2005 and Thakur et al, 2009) and constitute important ingredients of various Polyherbal formulation that are indicated in human beings for treatment of premature ovarian failure (Abdulmubeen 2008), under developed uterus or cervix (Mundewadi, 2008) and maintenance of pregnancy (Mundewadi, 2009).

GnRH-PGF 2α -GnRH treatment regime adopted during present studies produced 80% conception rate in cows with cystic ovaries and affected expulsion of uterine fluid in the mucometric cow.

These findings corroborate earlier reports of Antoine and Pattabiraman (1993), Brito and Palmer (200), López-Gaitus and López-Béjar (2002) and Shah (2009) where GnRH plus PGF 2α was found highly effective in expelling uterine fluid, resolving ovarian cysts and achieving considerable rate of conception.

The most common treatment for cystic ovary is GnRH, which results in an immediate increase in LH secretion and luteinization of the cysts. Ovulation of the cyst does not occur, but other follicles present at the time of treatment may ovulate (Brito and Palmer, 2004). After the GnRH treatment and subsequent luteinization, the cyst becomes responsive to prostaglandin-F 2α because the steroidogenic synthesis pathway has switched from estradiol to progesterone. The newly elevated levels of progesterone are responsible for a restoration of responsiveness to the positive feedback effect of estradiol, resulting in the resumption of normal cyclic ovarian activity after the release of endogenous PGF 2α and cystic regression. (Brito and Palmer, 2004) Ovsynch protocol(GnRH- PGF 2α –GnRH) for fixed time artificial insemination, adopted during present study has been reported to be highly effective on both follicular and luteal cysts,(López-Gaitus and López-Béjar 2002).and is considered to be the treatment of choice as it results in timely breeding after treatment for cows with either condition.

In bovines hydrometra or mucometra develops in untreated cases of cystic ovarian degeneration (Kaikini 1992 and Foley, et.al. 1996). Administration of prostaglandin (PGF 2α) causes luteolysis and expulsion of uterine contents within 3 to 4 days in animals which have luteal cyst, retained corpus luteum or a corpus luteum coexisting with a cyst (Antoine and Pattabiraman, 1993; Awasthi and Tiwari, 2002).

Oestrus in dairy animals with smooth ovaries can be induced by Polyherbal formulation containing balanced phytoestrogens. Administration of combination of (GnRH- PGF 2α –GnRH) can result in the resumption of normal cyclic ovarian

activity and improve overall breeding efficiency in cows with cystic ovaries.

REFERENCES

1. Abdulmubeen. J "Female Infertility, Ayurvedic Herbal Treatment, 2008 7, 111-115.
2. Antoine, D and Pattabiraman, S.R Use of GnRH in dairy cows, The Blue Cross Book, 1993 vol.2-p33-34
3. Awasthi, M.K and Tiwari, R.P, Successful treatment of bovine foetal mummification with Iliren. The Blue Cross Book, 2002 vol.19- p26-28
4. Brito, L. F. C., and C. W. Palmer. "Cystic Ovarian Disease in Cattle." Large Animal Veterinary Rounds 4, Dec. 2004: 1-6.
5. Dhavale P.K., Dhoble R.L. and Dande C.G.. Clinical efficiency of MAU drug for induction of oestrus in postpartum anoestrus buffaloes. Indian Journal of Animal Reproduction, 1998 19(1):24-25.
6. Dhoble R.L. and Markandeya N.M. Clinical response to Morolac in postpartum anoestrus Deoni cows. Buffalo Journal, 1995 11(2):170-181.
7. Foley, G. L. "Pathology of the Corpus Luteum of Cows." Theriogenology 45 1996: 1413-1428. Print.
8. Ghani A. Medicinal plants of Bangladesh-chemical constituents and uses. Bangladesh: Asiatic society of Bangladesh; 1998.p.290.
9. Gordon, I. "The Cow's Oestrous Cycle." Controlled Reproduction in Cattle and Buffaloes. Wallingford: CAB International, 1996. 123-125
10. Kaikini, A. S.. Key note on new horizons of animal breeding.Indian.J.Anim.Reprod. 1992 13 (2) p 101-108
11. Kodagali S.B., Bhavaras B.K. and Kavani F.S.. Clinical evaluation of Prajana for treatment of anoestrus condition in Surti buffaloes. 1991 Pasudhan 6(6):8.
12. López-Gaitus, F., and M. Lopez-Béjar. "Reproductive Performance of Dairy Cows with Ovarian Cysts after Different GnRH and Cloprostenol Treatments." Theriogenology 58 2002: 1337-1348.
13. Mundewadi .A, Female Infertility, Ayurvedic Herbal Treatment. 2009, 3, 121-125.

14. Mundewadi .A, Female Infertility, Ayurvedic Herbal Treatment. 2009, 5, 141-145.
15. Nemade P.K., Gatne M.M., Somkuwar A.P. and Ranade V.V. 1994. Oestrogenic activity of herbal preparation Heatinee in mice and buffaloes. Veterinarian 18:9-11.
16. Pandey SK. Sahay A. Pandey RS. Tripathi YB.. Effect of Asparagus racemosus rhizome (Shatavari) on mammary gland and genital organs of pregnant rat. Phytotherapy Research. 2005 19(8):721-4
17. Roberts, S.J. Veterinary obstetrics and genital diseases C.B.S Publishers and Distributors, India 1984 p 429-577
18. Shah A. Khurshid, Persistent Tympany Associated with Hydrometra in a Cow. 2009 Vetscan. Vol. 4 No. 2
19. Shah I.M. and Derashri H.J. Anoestrus in buffaloes: Treatment with Estrona. Indian Journal of Animal Reproduction, 1985 6:81-83.
20. Shah, N.A. Effect of Gonadotrophic releasing Hormone on anoestrus cows under temperate climatic conditions. 1985 Msc Thesis submitted to Sheri Kashmir University of Agricultural Science and Technology J&K
21. Thakur M., Chauhan NS., Bhargava S. Dixit VK. A comparative study on aphrodisiac activity of some ayurvedic herbs in male albino rats. Archives of Sexual Behavior. 2009 38(6):1009-15.Uma
22. Shanker, S.K. Shrivastav, S.K. Agarwal and Satish Kumar. Oestrus response and fertility in Non-cyclic Crossbred cattle treated with Herbal Medicinal Plant Aloe barbadensis.Blue Cross Book 2000 15: 24-25
23. Youngquist, R. S., and W. R. Threlfall. "Ovarian Follicular Cysts." Current Therapy in Large Animal Theriogenology. St. Louis, MO: Saunders Elsevier, 2007. 379-383

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