



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2019; 7(1): 1361-1363
© 2019 JEZS
Received: 26-11-2018
Accepted: 30-12-2018

Subhash Chandra
International Institute of
Veterinary Education &
Research, Rohtak, Haryana,
India

PS Oberoi
ICAR-National Dairy Research
Institute, Karnal, Haryana,
India

Anuradha Gupta
ICAR-National Dairy Research
Institute, Karnal, Haryana,
India

PK Singh
ASCI, Chitrakut Govt. of India

Pranay Bharti
Krishi Vigyan Kendra Dindori,
Madhya Pradesh, India

Diwakar
ICAR-National Dairy Research
Institute, Karnal, Haryana,
India

Girish J Panchbhai
Post Graduate Institute of
Veterinary and Animal Sciences,
(MAFSU) Akola, Maharashtra,
India

Ankaj Thakur
CSK Himachal Pradesh
Agricultural University,
Himachal Pradesh, India

Correspondence
Subhash Chandra
International Institute of
Veterinary Education &
Research, Rohtak, Haryana,
India

Effect of Poly-herbal mixture and Butyric Acid supplementation on incidences of metritis, endometritis and anestrus in Postpartum Murrah buffaloes

Subhash Chandra, PS Oberoi, Anuradha Gupta, PK Singh, Pranay Bharti, Diwakar, Girish J Panchbhai and Ankaj Thakur

Abstract

The present experiment was conducted to evaluate the effect of poly-herbal mixture and butyric acid supplementation, alone and in combination on postpartum reproductive disorders of Murrah buffaloes. A total 36 multiparous Murrah buffaloes were selected and randomly divided into four groups, three groups were for three different types of supplementary feeding (T₁, T₂ and T₃) and one as control group (T₀). Group T₁ were supplemented with poly-herbal supplementation for seven day post partum, group T₂ with poly-herbal supplementation for seven day post partum + 200 ml butyric acid supplementation for 30 day prepartum and 30 day postpartum and group T₃ with 200 ml butyric acid supplementation for 30 day prepartum and 30 day postpartum. Data of Animals were analyzed for the sign of metritis, endometritis and anestrus. The study concealed that there was no incidence of metritis in supplemented (T₁, T₂ and T₃) groups and was 11.11% in control groups. The incidence of endometritis was 11.11 percent in both T₁ and T₃ group, it's lesser than C group was 22.2% percent. The anoestrus condition of murrah buffaloes in all the supplemented group (T₁, T₂ and T₃ groups) was 11.11 percent which is lower than the control groups (22.22%). It could be concluded that the supplementation of poly-herbal mixture and butyric acid reduce the incidence of reproductive disorder and improve the reproductive performance of Murrah buffalo.

Keywords: Murrah buffaloes, polyherbal mixture, butyrate, metritis and endometritis, anoestrus

Introduction

The transition period is the most crucial phase in bovine life when various physiological, gynecological and metabolic changes occurs that leads to disrupt the homeostatic mechanisms of the buffaloes. Buffalo is exposed to high risk of infection to uterus after postpartum due to anatomical barriers which are breached and genitalia remains open for various days leads to gynecological disorders like anoestrus, endometritis, metritis, pyometra etc in buffalo. The two main postpartum clinical conditions are metritis and endometritis. Metritis is most common within 10 days of parturition, and is characterized by an enlarged uterus containing a watery red-brown fluid to viscous off-white purulent uterine discharge, which often has a fetid odour. Incidences of metritis is ranging from 3.60% to 12.45% with variation between breed and herd of buffalo were affected in India ^[1, 2]. (Tomar and Tripathi, 1992; Tomar *et al.*, 2002). Clinical endometritis is defined as the presence of a purulent discharge detectable in the vagina 21 days or more post-partum, or mucopurulent discharge detectable in the vagina after 26 days post-partum. Incidence of endometritis in Buffaloes ranging from 8.07% to 28.72% were affected in India ^[3, 4]. (Prajapati *et al.*, 2005; Singh *et al.*, 2003). There is delayed involution of uterus and subsequent delayed ovarian activity, delayed conception and the problems of repeat breeding or even permanent infertility ^[5]. It is estimated that around 18-40% of cattle and buffaloes were culled mainly due to infertility ^[6]. Hence the present investigation was undertaken to study the Effect of Poly-herbal mixture and Butyric Acid supplementation on incidences of metritis, endometritis and anestrus in Postpartum Murrah buffaloes.

Materials and Methods

The present study was conducted from August 2014 to May 2015 on thirty six murrah buffaloes selected 30 days before expected date of calving and randomly allotted on the basis

of their parity (2 to 6 parity) to one control and three treatments groups of 9 buffaloes each under randomized complete block design (RCBD). Control group i.e. T₀ (n=9) was offered 10% higher ration than the standard requirements. Three treatment groups such as T₁, T₂ and T₃ were offered ration as per control group and different supplements. In T₁ group, buffaloes were supplemented with poly-herbal mixture for seven days post partum. The Poly-herbal mixture in this study was composed of six herbs, *Foeniculum vulgare* (Saunf), 25g; *Trachyspermum ammi* (Ajwain), 25g; *Trigonella foenum-graecum* (Methi), 25g; *Zingiber officinale* (Sundh), 25g; *Anethum graveolens* (Sowa), 25g and *Elettaria cardamomum* (Cardamom), 25g along with that 25 gram black salt (Kala Namak) was also added and finally that were administered as a single dose. 150g of poly-herbal mixture along with 25g black salt was mixed in 1litre of water. This mixture was boiled for about 20-30 minutes till half of water remains, and then 250 grams of Jaggery (Gur) were added and heated for 5-10 minutes. The poly-herbal mixture, thus, prepared to be mixed with 1.5 kg of concentrate mixture and fed to the buffaloes of T₁ and T₂ groups after parturition for seven days in the morning hours. In T₂ group, along with poly-herbal supplementation for seven days post partum, 200 ml butyric acid (99%) supplementation was given from 30 day prepartum and 30 day postpartum. In T₃ group (n=9), buffaloes were supplemented with 200 ml butyric acid (99%) from 30 day prepartum and 30 day postpartum. The buffaloes were managed as per the standard practices followed in the institutes herd. Animals for present experiment were duly approved by Institute Animal Ethics Committee.

Reproductive parameters

After parturition, Buffaloes with different grades of uterine infections were diagnosed using the accepted definitions [7]. Briefly, those buffaloes were not systemically ill, but had an abnormally enlarged uterus and a purulent uterine discharge detectable from the vagina, within 21 days post-partum, were classified as having clinical metritis [8]. Clinical endometritis was characterized by the presence of purulent (>50% pus) uterine discharge detectable in vagina 21 days or more after parturition or mucopurulent discharge detectable in the vagina after 26 days post-partum [8]. All data were subjected to ANOVA for RCBD using general linear model (GLM) of SAS and group comparison was done by tukey test.

Results and Discussion

Results of Incidences of metritis, endometritis and anestrus in Murrah buffaloes are presented in the Table 1. Prevalence of incidence of reproductive disorders (metritis, endometritis and anestrus) were lower in supplemented group 55.56%, (T₁ - 22.22%, T₂ - 11.11% and T₃ - 22.22%) compared than the control groups (55.55%). There was no incidence of metritis in supplemented group and was 11.11% incidence in control groups of Murrah buffaloes. Earlier number of researchers had reported an incidence of metritis was 12.45% [9] in Murrah buffaloes. Contrary to these findings reported by Taraphder (2002) [10]. The incidence of endometritis in supplemented group (T₁ - 11.11% and T₃ - 11.11%) was comparably lower than the control groups (22.22%) of Murrah buffaloes, similar finding (28.72%) reported by Prajapati *et al.* (2005) [3] in Murrah buffaloes. The contrary finding were reported by Singh *et al.* (2003); Naidu and Rao (2004) [4, 11]. The incidence of anoestrus was lower in supplemented group (T₁ - 11.11%, T₂ - 11.11% and T₃ -

11.11%) than the control groups (22.22% in) of Murrah buffaloes. Contrary incidences of anestrus have been reported by Prajapati *et al.* (2005); Singh *et al.* (2003); Naidu, and Rao, (2004); Selvaraju and Ramaraj (2005); Pandit (2004); Tomar *et al.* (2002) [3, 4, 11-13, 2]. This result showed the importance of poly-herbal feeding (just after post-partum) and butyric acid feeding (before and after one month post-partum) during transition period as it helps to overcome the postpartum reproductive disorders in Murrah buffaloes. Supplementation of Poly-herbal mixture and butyric acid provided more favorable environment for earlier placenta detachment through modulating host immunity, stimulating uterine contractions hence affording greater protection against harmful pathogens are responsible for the uterine infections. Therefore, the results depicted that the poly-herbal mixture and butyric acid improved the overall fertility in Murrah buffaloes may be due to synergistic effect of *Foeniculum vulgare* to improve uterus conditions [14] and *Trachyspermum ammi* and *Trigonella foenum-graecum* having immunomodulatory, anti-inflammatory and antithrombotic properties [15, 16] *Zingiber officinale* and *Elettaria cardamomum* having analgesic and anti-inflammatory properties [17-19], *Anethum graveolens* having anti-inflammatory [20]. In the present study, supplementation of poly-herbal and butyric acid during transition period improved reproductive performance, which indicates the effectiveness of poly-herbal and butyric acid.

Table 1: Post-partum reproductive disorder like metritis, endometritis and anestrus in Murrah buffaloes supplemented with poly-herbal and butyric acid during transition period

Parameters	Herbal (T ₁) (%)	Herbal +Butyrate (T ₂) (%)	Butyrate (T ₃) (%)	Control (T ₀) (%)
Metritis	Nil	Nil	Nil	11.11
Endometritis	11.11	Nil	11.11	22.22
Anestrus	11.11	11.11	11.11	22.22
Over all	22.22	11.11	22.22	55.55

Conclusions

It could be concluded that the supplementation of poly-herbal mixture (@ 425g for seven days just after parturition and butyric acid (@ 200ml for 30 days pre and post parturition during transition period to reduce the incidence of metritis endometritis and anoestrus in supplemented groups of Murrah buffaloes.

Acknowledgements

The authors are highly thankful to the Director of ICAR-National Dairy Research Institute (NDRI) for providing financial support and necessary facilities for carrying out the research work.

References

- Tomar SS, Tripathi VN. Incidence and association among certain reproductive problems in Murrah buffaloes. Indian J Dai. Sci. 1994; 47(12):1050-1052.
- Tomar KPS, Singh P, Singh R, Singh S. Seasonal variation in reproductive problem of buffaloes under field conditions. Indian J Anim. Reprod. 2002; 23(1):18-20.
- Prajapati SB, Ghodasara DJ, Joshi BP, Prajapati KS, Jani VR. Etio-pathological study of endometritis in repeat breeder buffaloes. Buffalo J. 2005; 21(2):145.
- Singh G, Sidhu SS, Verma HK. Incidence of reproductive

- disorders of buffaloes in different zones of Punjab state. J Res. 2003; 40(1):79-81.
5. Narasimhan KS, Deopurkar VL. Accidents and diseases incidental to parturition. In: Sane, C.R., others (Eds.). Reproduction in farm Anim.s. (2nd Edn.) Varghese Publishing House, Bombay, India, 1994.
 6. Kaikini AS. Reproductive disorders of livestock. In: handbook of animal husbandry, ICAR publication, 2002, 692-718.
 7. Sheldon RA, Arends IW, ten Brink GJ, Dijkman A. Green, catalytic oxidations of alcohols. Accounts of chemical research. 2002; 35(9):774-781.
 8. Sheldon IM, Lewis G, LeBlanc S, Gilbert R. Defining postpartum uterine disease in dairy cattle. Therio. 2006. 65:1516-1530.
 9. Singh B, Joshi JJ. Epidemiology, clinic-pathology and treatment of clinical trypanosome evansi infection in buffalo (*Bubalus bubalis*). Indian Vet. J. 1991; 68(10):975-979.
 10. Taraphder S. Genetic and economic evaluation of MB for lactation disorder and disposal pattern. Ph. D. thesis submitted to the National Dairy Research Institute, Karnal, 2002.
 11. Naidu GV, Rao KB. A note on the incidence of reproductive disorders in buffaloes in Guntur district of Andhra Pradesh. Indian J Anim. Reprod. 2004; 25(1):37-38.
 12. Selvaraju T, Ramaraj R. Electro chemically deposited nanostructured platinum on Nafion coated electrode for sensor applications. Journal of Electroanalytical Chemistry. 2005; 585(2):290-300.
 13. Pandit RK. Incidence of different kinds of reproductive disorders in livestock. Indian J Anim. Sci. 2004, 25-35.
 14. Ostad SN, Soodi M, Shariffzadeh M, Khorshidi N, Marzban H. The effect of fennel essential oil on uterine contraction as a model for dysmenorrhea, pharmacology and toxicology study. J Ethnopharmacol. 2001; 76(3):299-304.
 15. Bonjar S. Evaluation of antibacterial properties of some medicinal plants used in Iran. J Ethnopharmacol. 2004; 94(2):301-305.
 16. Ahmadiani A, Javan M, Semnianian S, Barat E, Kamalinejad M. Anti-inflammatory and antipyretic effects of *Trigonella foenum-graecum* leaves extract in the rat. J. Ethnopharmacol, 2001; 75(2):283-286.
 17. Al-Zuhair H, El-Sayeh B, Ameen HA, Al-Shoora H. Pharmacological studies of cardamom oil in animals. Pharmacol Res, 1996; 34(1):79-82.
 18. Sapra B, Gupta S, Tiwary AK. Role of volatile oil pretreatment and skin cholesterol on permeation of ion-paired diclofenac sodium. Indian, J Exp. Biol. 2000; 38(9):895-900.
 19. Jiang H, Hu Y, Zhao P, Li Y, Zhu K. Modulation of protein release from biodegradable core-shell structured fibers prepared by coaxial electrospinning. Journal of Biomedical Materials Research Part B: Applied Biomaterials: An Official Journal of The Society for Biomaterials, The Japanese Society for Biomaterials, and The Australian Society for Biomaterials and the Korean Society for Biomaterials. 2006; 79(1):50-57.
 20. Heamalatha S, Swarnalatha S, Divya M, Gandhi Lakshmi R, Ganga Devi A, Gomathi E. Pharmacognostical, pharmacological, investigation on *Anethum graveolens* Linn: A review. Res J Pharm Biol Chem Sci. 2011; 2:564-574.