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Research Article

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Evaluation of Effect of Pre emptive Administration of Meloxicam on Rectal Temperature and Respiration Rate in Dystocia Affected Buffaloes

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ABSTRACT

Number of analgesics of NSAID group viz meloxicam and rofecoxib etc has been used in management of post operative pain. Respiration rate was also recorded to be significantly higher in buffaloes which died following treatment of dystocia as compared to those which survived. However no observable difference was noticed on rectal temperature. The Present study had been undertaken to evaluate the efficacy of meloxicam on rectal temperature and respiration rate in dystocia affected buffaloes.

Key words: *Meloxicam, Rectal temperature, Respiratory rate, Dystocia*

INTRODUCTION

Problems at the time of parturition are a cause of great concern to the livestock owner and the veterinarian alike as difficult parturition adds risk to the life of dam and the foetus besides impairment of the productive and reproductive capabilities of the dam. Various procedures employed to relieve dystocia further intensify the stress to an already stressed individual.

Uterine manipulations cause excessive pain to the affected animals. It is imperative that stress and pain to the dystocia affected dam be minimized by administration of tranquillizers, analgesics etc.

Recently a number of analgesics of NSAID group *viz.* meloxicam and rofecoxib etc has been used in management of post operative pain. Fazili[1] conducted comparative evaluation of meloxicam and rofecoxib in management of post-operative pain in canine orthopaedic cases. However, no study has been undertaken on the efficacy of these analgesics in modulation of stress in laparohysterotomy operation cases in bovines. In present study we evaluated effect of pre emptive administration of Meloxicam on rectal temperature and respiration rate in dystocia affected buffaloes.

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MATERIAL AND METHODS

The present investigation was carried out on 41 dystocia affected buffaloes brought to the teaching veterinary clinics, CCS HAU, Hisar for treatment. Before attempting to relieve the dystocia, a complete history of the case with regard to parity, stage of gestation, duration of problem and previous handling of the case by the field staff/laymen, was obtained from the owner. The nature and cause of dystocia was determined on the basis of systemic examination and depending upon the cause of difficulty in birth and the duration and pervious handling of the case, obstetrical management was carried out. All the animals received routine supportive therapy consisting of parentral antibiotics, dexamethasone, fluid therapy, hemostatic, uterine stimulants and intrauterine antiseptics administration post-delivery of the foetus.

Grouping on the basis of obstetrical operation:

Group-I: comprised of 19 buffaloes in which foetus were removed by Caesarian section without administration of meloxicam prior to surgery.

Group II: was comprised of 22 caesarean operated buffaloes treated preemptively with meloxicam.

Sub-grouping on the basis of obstetrical operation:

Group-I_A consisted of 8 buffaloes in which dystocia were relieved by non-surgical techniques and without pre-emptive administration of meloxicam.

Group-I_B comprised of 11 buffaloes in which foetus was removed by laparohysterotomy without administration of meloxicam prior to surgery.

Group II_A included 8 meloxicam administered dystocia affected buffaloes treated non-surgically.

Group II_B was comprised of 14 caesarean operated buffaloes treated preemptively with meloxicam.

Sub grouping on the basis of survival of dam following obstetrical management :

Group S consisted of 24 buffaloes which survived following treatment.

Group D included 17 buffaloes which died during or after obstetrical operation. S_I and S_{II} consisted of 13 and 11 buffaloes respectively which survived without/with pre emptive administration of meloxicam.

Groups D_I and D_{II} were composed of six and 11 buffaloes respectively which died following obstetrical intervention without/with administration of meloxicam.

Groups S_B and D_B included 12 and 13 caesarean operated buffaloes respectively which survived or died following operation, Irrespective of treatment with Meloxicam.

RESULTS

Cause of dystocia:

The majority of the cases of dystocia in the present study were maternal in origin. While the maternal dystocia constituted 75.6% percent of the cases, foetal dystocia accounted for only 10 out of 41 cases.

Parity of the dam:

Although the total number of dystocia cases was observed to be more in pleuriparous buffaloes (80.48%) than the primipara (19.52%).

Rectal temperature:

The observations on rectal temperature of dystocia affected buffaloes in different groups have been depicted in Table 1. There was no significant change in rectal temperature following treatment of dystocia. Also the rectal temperature of dystocia affected buffaloes was not significantly affected by preemptive administration of meloxicam, not only this, the temperature was also not influenced by the kind of obstetrical operation employed to relieve dystocia (Table 2). The mean body temperature was found to be slightly higher in buffaloes which died as compared to buffaloes which survived following treatment (Table 3) though the difference was non-significant. The temperature was recorded as significantly lower ($P<0.05$) at 0 hour in buffaloes which survived in group II as compared to the buffaloes which died in this group. The buffaloes which succumbed following caesarean operation had significantly higher

($p<0.05$) body temperature at 24 hours post caesarean (102.408±0.457 ^{0}F) than the buffaloes which survived following Surgery (101.258 ± 0.169).

Respiration Rate:

Effect of preemptive administration of meloxicam on respiration rate has been depicted in table 7. Respiration rate was recorded as significantly higher ($p<0.05$) in meloxicam administered buffaloes treated without surgical intervention (Group IIa) when compared with the identical sub group without meloxicam administration (Group Ia).Overall no significant difference was observed in respiration rate of dystocia affected buffaloes with or without pre-emptive administration of meloxicam (Table4). The respiration rate was recorded to be significantly higher ($p<0.05$) in meloxicam administered buffaloes treated non surgically (Group II_A) as compared to caesarean operated buffaloes (Group II_B) at 0 hours and 24 hours interval (Table 5).

Respiration rate was significantly lower ($p<0.05$) in survivors right from the initial stage upto 24 hours post-treatment when compared with the animals that succumbed to treatment (Table 6).

Survivability V/S treatment

The data on survival of dystocia affected buffaloes following preemptive administration of meloxicam has been shown in table 2. Only one half of the buffaloes suffering from difficulty in birth survived when the buffaloes had been administered meloxicam intramuscularly prior to handling of dystocia. The survival rate of the dam was much better (68.42%) when meloxicam was not administered to the dystocia affected buffaloes. Only 52% of the caesarean operated buffaloes survived in the present investigation (Table 1).

Table 1: Effect of pre emptive administration of Meloxicam on Rectal Temperature in Dystocia affected buffaloes

Group	Sampling interval Temperature (0 F)		
	0 hour	2 hours	24 hours
I (n=19)	101.942±0.371	96.489±5.349	101.711±0.176
II (n=22)	102.073±0.308	101.352±0.244	101.800±0.319
I A (n=8)	101.650±0.230	101.775±0.125	101.388±0.214
II A (n=8)	101.250±0.191	100.950±0.206	101.714±0.434
I B (n=11)	102.155±0.624	101.873±0.584	101.855±0.279
II B (n=14)	101.58±0.361	101.585±0.361	101.585±0.408

Table 2: Effect of Obstetrical operation on rectal temperature in Dystocia affected Buffaloes

Group	Sampling interval Temperature (0 F)		
	0 hour	2 hours	24 hours
I A (n=8)	101.650±0.230	101.775±0.125	101.388±0.214
I B (n=11)	102.155±0.624	101.873±0.584	101.855±0.279
II A (n=8)	101.250±0.191	100.950±0.206	101.714±0.434
II B (n=14)	101.58±0.361	101.585±0.361	101.585±0.408

Table 3: Observation on Rectal Temperature and survivability in different groups of Dystocia affected buffaloes

Group	Sampling interval Temperature (0 F)		
	0 hour	2 hours	24 hours
S (n=24)	101.650±0.222	97.133±4.205	101.554±0.146
D (n=17)	102.523±0.454	101.906±0.436	102.080±0.408
S I (n=13)	101.846±0.281	93.83±7.77	101.56 ± 0.129
D I (n=6)	102.150 ± 1.068	102.25 ± 1.07	102.01 ± 0.487
S II (n=11)	101.41 ± 0.354	101.036 ± 0.336	101.53 ± 0.289
D II (n=11)	102.72 ± 0.433*****	100.70 ± 0.337	102.12 ± 0.621
S B (n=12)	101.775 ± 0.409	101.15 ± 0.315	101.258 ± 0.169
D B (n=13)	102.923 ± 0.547	102.28 ± 0.532	102.408 ± 0.457*****

* Significantly ($P<0.05$) different between groups at same interval

Table 4: Effect of pre emptive administration of Meloxicam on Respiration rate in Dystocia affected buffaloes

Group	Sampling interval Respiration Rate(per minute)		
	0 hour	2 hours	24 hours
I (n=19)	26.316 ± 2.085	24.734 ± 1.860	24.737 ± 1.859
II (n=22)	29.545 ± 3.391	28.190 ± 3.196	29.00 ± 2.538
I A (n=8)	22.125 ± 1.202	20.875 ± 1.355	23.875 ± 2.460
II A (n=8)	37.250 ± 7.173*	33.750 ± 6.379*	36.857 ± 3.488*
I B (n=11)	29.364 ± 3.251	25.729 ± 2.924	25.364 ± 2.751
II B (n=14)	25.143 ± 3.043	24.769 ± 3.201	24.769 ± 2.856

* Significantly (P<0.05) different between groups at same interval

Table 5: Effect of Obstetrical operation on Respiration Rate in Dystocia affected Buffaloes

Group	Sampling interval Respiration Rate(per minute)		
	0 hour	2 hours	24 hours
I A (n=8)	22.125 ± 1.202	20.875 ± 1.355	23.875 ± 2.460
I B (n=11)	29.364 ± 3.251	25.729 ± 2.924	25.364 ± 2.751
II A (n=8)	37.250 ± 7.173	33.750 ± 6.379	36.857 ± 3.488
II B (n=14)	25.143 ± 3.043*	24.769 ± 3.201	24.769 ± 2.856*

* Significantly (P<0.05) different between groups at same interval

Table 6: Observation on Respiration Rate and survivability in different groups of Dystocia affected buffaloes

Group	Sampling interval Respiration Rate(per minute)		
	0 hour	2 hours	24 hours
S (n=24)	23.416 ± 1.629	22.125 ± 1.087	23.33 ± 1.49
D (n=17)	34.588 ± 3.928*	33.187 ± 3.960*	32.66 ± 2.96*
S I (n=13)	25.00 ± 2.71	22.84 ± 1.75	22.33 ± 1.73
D I (n=6)	29.16 ± 2.99	28.83 ± 4.30	29.33 ± 4.20
S II (n=11)	21.54 ± 1.50	21.27 ± 1.191	24.181 ± 2.48
D II (n=11)	37.54 ± 5.76*	35.80 ± 5.80*	34.88 ± 4.08*
S B (n=12)	24.083 ± 3.184	22.500 ± 1.982	19.166 ± 1.043
D B (n=13)	29.692 ± 3.019	29.583 ± 3.587	30.916 ± 2.932**

* Significantly (P<0.05) different between groups at same interval

** Significantly (P<0.01) different between groups at same interval

DISCUSSION

The present investigation on 41 clinical cases of dystocia in buffaloes brought to the teaching Veterinary Clinics of College of Veterinary Sciences, Hisar for treatment. These cases were characterized by pre-ponderance of maternal type of dystocia with torsion of uterus being on the top of the list of causes of dystocia. This observation is in agreement with the earlier reports of Manju and Verma[2], Devender Kumar[3], Prabhakar *et al*., [4], Dahiya [5] and Gagan Gaudi[6]. Among the uterine torsion cases, the twist in the uterus occurred caudal to cervix in 23 out of 24 cases and in clockwise direction in cent percent cases in the present study. Similar observations have been recorded earlier by Dahiya[5] and Gagan Gaudi[6]. Several other workers Vasishta, 1983[7]; Khatri, 1985[8], Malik, 1986[9], Siddiquee, 1988[10], Kumar, 1990[11]; and Prabhakar *et al*. 1994[4] have also reported that the post-cervical uterine torsion predominates in buffaloes and that the torsion occurs in clockwise direction in more than 95 per cent of cases. In majority of the cases in the present study the foetus was found to be dead. This is both due to the high mortality rate in cases of torsion of uterus in buffaloes as reported by Vasishta [7], Agarwal[11], Prabhakar *et al*. [4] and Dahiya[5] and also because of the delay in reporting the case to the veterinary clinics.

The preemptive administration of meloxicam did not have significant influence on body temperature and respiration rate of dystocia affected buffaloes during the period under study. Fazili[1] however, observed significantly higher rectal temperature in dogs at 24 hours prior to orthopaedic surgery as

compared to the temperature recorded at 20 hours post surgery when the dogs were administered meloxicam 30 min prior to orthopaedic intervention. Mondal *et al*. [13] on the other hand reported hypothermia up to 30 minutes in bitches undergoing elective ovariohysterectomy under xylazine sedation and administered meloxicam @ 1.2 mg/kg I/M after completion of surgery. Our observations on respiration rate following meloxicam administration match well with the finding of Fazili[1] in dogs administered meloxicam for pain management in fracture cases. However, no such observation is available in buffaloes to compare or contrast with our findings.

There was no significant difference in rectal temperature and respiration rate following treatment of dystocia or between caesarean operated and non-surgically treated buffaloes at different intervals. This is in tune with the reports of Khatri [8] in torsion affected buffaloes and Jalal-Bakhtyari and Singh[14] in healthy pregnant goats undergoing elective caesarean section.

Buffaloes which succumbed following treatment were found to have higher rectal temperature than those which survived and this difference was significant between the two groups at 24 hours post caesarean. Jalal-Bakhtyari and Singh[14] stated that caesarean section whether performed by using scalpel or electro surgery had no effect on rectal temperature. Certainly some other factors are responsible for rise of body temperature and consequent deleterious effect on survivability. Trauma may result in release of endogenous pyrogens due to release of prostaglandins in the hypothalamus[15]. Fever may also result from infection, before during or after caesarean operation. Frazer *et al*.[16] reported that 23% of cows with uterine torsion had fever.

Respiration rate was also recorded to be significantly higher in buffaloes which died following treatment of dystocia as compared to those which survived. Tachypnoea was observed in 84 per cent of cows affected with uterine torsion in a case records study reported by Frazer *et al*. [16]. Increased respiration rate indicated greater degree of stress in these buffaloes.

CONCLUSION

Preemptive Evaluation of administration of meloxicam prior to obstetrical intervention in dystocia affected buffaloes on rectal temperature and respiration rate was intensively carried out in our study. Respiration rate recorded to be significantly higher in buffaloes which died following treatment of dystocia as compared to those which survived. However, no observable difference in rectal temperature following treatment of dystocia or between caesarean operated and non-surgically treated buffaloes at different intervals was found.

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REFERENCES

1. Fazili., Studies on comparative evaluation of meloxicam and rofecoxib in management of postoperative pain in canine orthopaedic cases. Ph.D. Dissertation, Chaudhary Charan Singh Haryana Agricultural University, Hisar, India. (2005).
2. Manju, T.S. and Verma, S.K., Uterine torsion in buffaloes Incidence. *Indian J. Anim. Reprod*. **6(1)**: 54-56. (1985).
3. Devender, K., Clinical and endocrinological studies on uterine torsion in buffaloes. M.V.Sc. Thesis Haryana Agric. Univ. Hisar, India (1991).
4. Prabhakar, S., Singh, P., Nanda, A.S. and Sharma, R.D., Clinico-obstetrical observations on uterine torsion in bovines. *Indian vet. J*. **71:** 822-24. (1994).
5. Dahiya, N.K., Studies on post caesarian rumen function and the use of b-adrenergic agonists in buffaloes with dystocia. M.V.Sc. *Thesis Haryana Agric*. Univ., Hisar, India. (1998).

6. Gagan, G., Studies on pathophysiology of Bovine Dystocia with special reference to Energy metabolism. M.V.Sc. *Thesis. Haryana Agric*. Univ., Hisar, India. (2004).
7. Vasishta, N.K., Torsion of uterus in Buffaloes in relation to Incidence, etiology and treatment M.V.Sc. *Thesis submitted to Punjab Agricultural University*, Ludhiana, India. (1983).
8. Khatri, C.K., Studies on pathophysiology and treatment of uterine torsion in buffaloes. M.V.Sc. Thesis, Haryana Agric. Univ., Hisar. India. (1985).
9. Malik, J.S., Histo-chemical and histo-pathological studies on uterine torsion in buffaloes (*Bubalus bubalis*). M.V.Sc. *Thesis, Haryana Agric*. Univ., Hisar, India. (1986).
10. Siddiquee, G.M., Studies on aetiopathology and therapeutics of uterine torsion in buffaloes. Ph.D. Dissertation. Punjab Agric. Univ. Ludhiana, India. (1988).
11. Kumar, P., Post-partum ovarian activity in relation to calving season in buffaloes (*Bubalus bubalis*). M. V.Sc. Thesis, Punjab Agric. Univ., Ludhiana, India. (1990).
12. Agarwal, R.G., Some studies on uterine torsion with special reference to its aetiology and treatment in buffaloes. Ph. D. Dissertation, Punjab Agric. Univ., Ludhiana, India. (1987).
13. Mondal, P., Nandi, S.K. and Ghosh, D. Evaluation of post operative analgesia of ketoprofen, Meloxicam and tramadol in bitches undergoing ovariohysterectomy. *India J. Animal Sciences*. **75:** 513-515. (2006).
14. Jalal, B. and Singh, G.R., Clinical and Haematological changes following repeated elective caesarean section with scalpel and electro surgery in goats. *Indian Journal of Veterinary Surgery* **16(2):** 97-100. (1995).
15. Lees, P., May, S.A. and McKellar, Q.A., Pharmacology and therapeutics of non-steriodal anti-infalmmatory drugs in the dog and cat: 1 General Pharmacology. *J. Small Anim. Pract*. **32:** 183-193. (1991).
16. Frazer, G.S.; Perkins, N.R.; Constable, P.D., Bovine uterine torsion: 164 Hospital referral cases. *Theriogenology* **46:** 739-758. (1996).