

ORIGINAL ARTICLE

Effect of Methyl Ergometrine Maleate on Expulsion Of Fetal Membrane In Crossbred Cows

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ABSTRACT

Normally calved 36 post partum H.F CB cattle from first to sixth parity were selected and grouped into treatment ($n = 30$) and control ($n = 6$). In treatment group, the methyl ergometrine maleate (0.2 mg/ml, Ergovet) was administered intramuscularly @ 10 ml, ½ hr. of delivery of calf and the time (hrs.) of expulsion of placenta was recorded while at same time, in control, normal saline was injected IM, OD. A significantly ($p < 0.05$) earlier expulsion of fetal membrane in methyl ergometrine treated group (4.4240 ± 0.081 hrs.) as compared to control group (8.8617 ± 0.367 hrs.) was observed. The expulsion of fetal membrane in methyl ergometrine treated group was earlier as compared to untreated group, hence methyl ergometrine can be used as preventive drug to reduce the incidences of RFM in dairy cows.

Keywords: Methyl ergometrine, uterine involution, retention of fetal membrane, fertility.

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INTRODUCTION

Post partum reproductive performance or fertility is economically important for milk producing dairy units as it affects milk yield per cow per day and number of replacements produced per cow [5]. The postpartum period is a critical event in reproductive performance of dairy cattle [11] and the timed regain of post partum fertility, is the principal economic factor of dairy sector but RFM is a major factor for reduced fertility of dairy cattle postpartum. The prolonged third stage of parturition leads to retention of fetal membrane. RFM further complicated with secondary metritis and also hindered the normal uterine involution [12]. The incidence of RFM varies from 1.96 to 55 per cent of calving [7, 14] while except in some situations like brucella affected herd, dystocia or nutritional deficiency, the range reported to be only 3-12 per cent (average 7 per cent) [3, 9] reported the overall incidence of RFM in crossbred cattle was 26% while it was 16 % in Zebu cattle and 13 % in Murrah buffalos. Abnormal parturition and puerperal complications leads to RFM and its negative sequel include delayed uterine involution, longer time to 1st service, consequent postpartum anestrus, increased services per conception, decreased pregnancy rates and increased days open [22, 16, 2, 6, 9] further associated with increased risk for endometritis, metritis, ketosis, and mastitis [10-13]. Methyl ergometrine act directly on the uterine musculature (receptor mediated ; ergometrine agonists) and leads to contraction mediated by voltage – gated calcium channels, which are open directly and indirectly by agonist receptors [18]. Thus the present study was designed to observe the effect of methyl ergometrine on prevention of retention of fetal membranes.

MATERIALS AND METHODS

The study was conducted on 36 normally calved H.F. CB cows maintained at Instructional Dairy Farm Nagla, Pantnagar, District Udham Singh Nagar, Uttarakhand from month of November to May, 2019. The animals were grouped into treatment ($n=30$) and control ($n=6$). In treatment group the Methyl ergometrine maleate (Ergovet, 0.2 mg / ml, Carus laboratories Pvt. @ 10 ml, IM) was injected at ½ hour after delivery of calf and then the time of expulsion of fetal membrane was recorded and tabulated. Data thus obtained by analysed using SPSS package based on statistics [19].

RESULT AND DISCUSSION

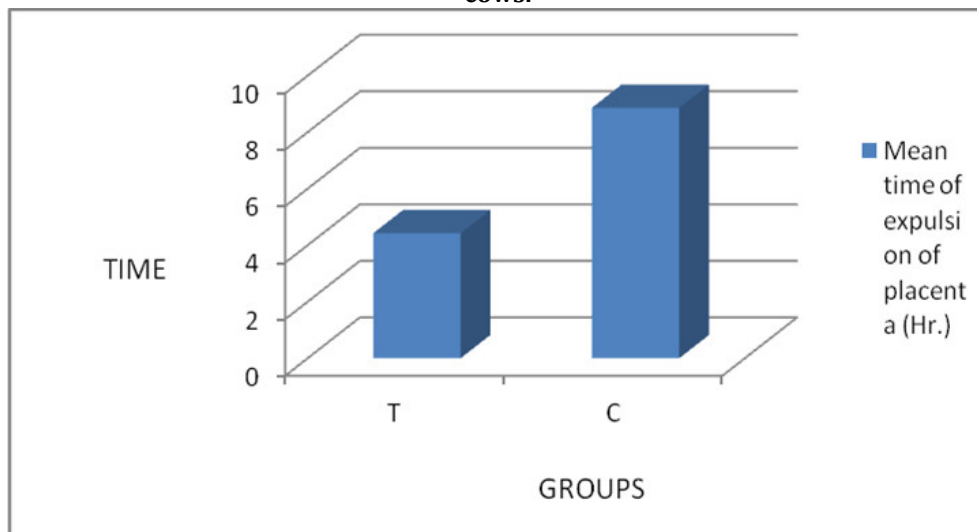
The expulsion of placenta after giving the drug was recorded to observe the effect of methyl ergometrine maleate on fetal membrane expulsion. The time required for expulsion of fetal membrane presented in Table 1 and Fig. 1. It was 4.42 ± 0.08 hrs. and 8.86 ± 0.36 hrs. in methyl ergometrine treated and control cows respectively. The result revealed that the time required in methyl ergometrine maleate treated cows for expulsion of fetal membrane was significantly ($p < 0.05$) earlier as compared to untreated cows. The findings of present study were in close agreement with Resum *et al.* [17], as they also reported the mean time of expulsion of placenta was 4.55 ± 0.41 hrs. on the contrary, the time of expulsion of fetal membrane was earlier ($3.47 \pm .023$ hrs) in methyl ergometrine treated group as compared to the control group (5.36 ± 0.19 hrs), as reported by Patel *et al.*, [15]. Hussein and Metwelly [8]; and Zaiem *et al.* [24] also reported that the methyl ergometrine injections reduces the incidence of retention of fetal membrane in cows.

Table1. Expulsion of placenta in methyl ergometrine treated and control.

Groups	No. of animals	Range of time of expulsion of placenta (Hr.)	Time (Hrs.) of expulsion of placenta (Mean \pm S.E.).
Methyl ergometrine treated	30	4-5	8.86 ± 0.36^a
Control	6	7-15	4.42 ± 0.08^b

Values bearing different superscripts (a, b) differ significantly ($p < 0.05$) between groups

Figure1. – Expulsion of fetal membrane in methyl ergometrine treated and untreated cross bred cows.



Solanki *et al.*, [20] observed that expulsion time of fetal membrane was 2.55 ± 0.06 , 3.03 ± 0.34 and 4.10 ± 0.36 hrs. in PGF2 alpha treated, methyl ergometrine treated and untreated cows respectively. The time of expulsion of fetal membrane in untreated cows was 8.8617 ± 0.367 hrs. Whereas, it was 4 hrs. in normally calved cows as observed by Stephan and Roberts [21]. Nearly, 8.86% and 16.46% reduction in RFM cases in Methergin-treated cows (both normal parturition and dystocia) and oxytocin-treated cows respectively, was observed by Abd El-Raze *et al.*, [1]. Similarly Azad *et al.*, [4] also observed the positive effect of methyl ergometrine to treat RFM cases. On the contrary, Waheeb *et al.*, [23] concluded that ergometrine was not effective to reduce the time of expelling fetal membranes. The fetal membrane expulsion time was less in methyl ergometrine treated cows. It might be because of methyl ergometrine action on uterine muscle contraction, which further helps in placental separation and expulsion of foetal membrane.

CONCLUSION

Methylergometrine maleate can be used to prevent the retention of fetal membrane. Fast expulsion of fetal membranes would further enhance the uterine involutuion process in dairy cows.

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