

REPEATED INTRAMUSCULAR INJECTION OF SYNTHETIC OCTAPEPTIDE (SYNTHETIC OXYTOCIN) TO MINIMIZE RETENTION OF THE FETAL MEMBRANE IN DAIRY BUFFALO-COWS

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ABSTRACT

Retention of the fetal membranes (RFM) is still a considerable problem in bovine reproduction. Forty normally calved buffalo-cows aged 4-7 years did not expel fetal membrane more than 6 hours was used in this trials. Out of their forty buffalo-cows (n = 20) were given 4 ml of synthetic oxytocin intramuscular (1ml = 10 i.u synthetic oxytocin). This was repeated every 30 minutes for up to six treatment or until the membranes did come away. The remain cows (n =20) received 4 ml. saline used as controls. In the analysis of the herd over about one year period. There was a recorded average 12.42% RFM (40/322), moreover the incidence of postpartum metritis was less in the treated group (10% vs 30% in the controls). The majority of treated buffalo-cows need four injection of synthetic oxytocin, but there was a range from two to six injection.

It could be concluded that the incidence of RFM could be minimizes by using i/m injection a synthetic octapeptide at six hours on-wards.

INTRODUCTION

Retention of fetal membranes for longer than six hours after parturition is pathologic (Arthur, 1979 and Van Werven et al., 1992). Roberts (1971) wrote that dropping of the placenta in cows occurred three to eight hours and if the placenta was retained longer than 8 hours the condition is considered pathological and is associated with a high incidence of postpartum metritis, (Erb, et al. 1958 and Halpern et al., 1985) and impaired fertility (VanWeren et al., 1992 and Oltencu et al., 1990). Many authors indicate that approximately 10% of all dairy cows have retained fetal membranes (RFM) for longer than 6 hours after parturition (Arthur, 1979; Erb et al., 1958 and Stevenson and Call, 1988). It makes the cow much more susceptible to other problems because the placenta acts like a wick bringing in manure, urine, bedding and bacteria

which cause uterine infections. Moreover, cow retains, usually subject to a cascade of problems such as metritis, cystic ovaries, low milk production and culling as a reproductive problem (Curtis, et al., 1985 and Erb, et al., 1988). Cows with a history of non-expelling placenta will probably continue to have problems postpartum (Graves and McLean, 2002). The incidence of retained placenta in dairy cows ranged from 6.29 to 14.6% as mentioned by many authors (Olsen, 1993 and Singh et al., 1997). In Egypt, higher incidence was reported by Sabry et al. (1997), they recorded (16.7%) among imported Friesian cows. It is advisable to treat retained cows using drugs that do not cause residue problems in milk as oxytocin and PGF₂α (Galligan and Ferguson, 1996, Hutchinson, 2002 and Ishler et al. 2003). It has been known that oxytocin stimulate the final myometrial activity and the expulsion of the foetus after the Ferguson reflex is indicated during parturition. Oxytocin release must be sustained therefore to expel the after birth (Russe, 1982). Therefore, exogenous oxytocin has been suggested for prevention of a retained placenta immediately postpartum (Roberts, 1971, Curtis, 1973 and Miller and Lodgi, 1984).

So, the objective of the present investigation are to minimize the incidence of retained fetal membranes (RFM) and improve the breeding performance by I/M injection of synthetic octapeptide 6 hours after delivery as a prophylactic measure against RFM in dairy buffaloes.

MATERIAL AND METHODS

The analysis of dairy buffalo-cows private herd in Dakahlia province over about one year period from January 2002 to March 2003 was investigated. The animals were housed in open yard system and handled identically. Their age ranged from 4-7 years. The herd was recorded an average 12.42% (40/322) did not expelled their fetal membrane. The forty normally calved buffalo-cows which did not expelled their fetal membrane more than 6 hours was used in this study and divided into two equal groups. Group one (n = 20) each animal was given 4 ml syntocinon = 40 I.U. a synthetic octapeptide identical with oxytocin being wholly synthetic it does not contain vasopressin and has a constant and reliable effect stimulates (produced by Novartis Pharm SAS Cairo under Licence from Novartis Pharama AG., Basle, Switzerland). Treatment was repeated every 30 minutes for up to six treatments, or until the membranes passed away. Treatment was stopped after six injections, even if the RFM had not been passed (synthetic oxytocin has an antidiuretic effect, which may cause transient water intoxication). Group two buffalo-cows (n = 20) each animal received six intramuscular injection 4 ml saline and used as controls. Time pass from 1st injection until the membranes passed away was recorded. Moreover, the incidence of postpartum metritis in the treated and control groups was recorded.

RESULTS

The mean length of time from parturition to 1st injection of synthetic oxytocin were applied after 6 hours from parturition. It was clear from the data table (1) and figure (1) indicate incidence of placental drop differs between the treated and control groups. Meanwhile, repeat intramuscular synthetic oxytocin injection revealed increase expulsion of fetal membrane. The majority of treated cows were given four injections of synthetic oxytocin, but there was a range from two to five injections. Moreover, the incidence of postpartum metritis was less in the treated than in control group (10% vs 30%).

DISCUSSION

Our clinical findings minimize the incidence of RFM when administered synthetic oxytocin 6 hours after birth every 30 minutes for 6 treatments or until membranes are expelled. Oxytocin increases uterine motility when administered after calving (Miller and Lodge, 1984). Therefore, exogenous oxytocin has been suggested for prevention of a retained placenta immediately postpartum (Roberts, 1971; Curtis, 1973 and Miller and Lodge, 1984). The data presented here would suggest that oxytocin play a facilitatory role in the dropping of placenta, through enhancing uterine contraction and/or may have a stimulatory effect on phagocytosis by uterine leucocytes (Razin, et al., 1978 and Vandeplassche and Bouters, 1983), where the later factor is improved to required for normal loosening of the placenta (Gunnuk, 1984).

Analysis of the herd over one year was recorded average 12.42% (40/322) buffalo-cows did not expel their fetal membrane more than 6 hours after birth. Similar results obtained by Olsen (1993) and Singh et al., (1997) recorded the incidence of retained placenta in dairy cows ranged from 6.29 to 14.6%. As well as in Egypt, higher incidence was reported by Sabry et al. (1997) recorded (16.7%) among imported Friesian cows. Echtenkamp and Gregory (1999) recorded higher incidence of retained placenta 17 to 29% in buffalo-cows. Made surveys indicate that approximately 10% of all dairy cows have RFM for longer than 6 hours after parturition (Arthur, 1979 and Stevenson and Call, 1988). The incidence of postpartum metritis was less in the treated group (10% vs 30% in the controls). Similar results obtained by El-Azab et al., (1988). cited that the incidence of postpartum metritis in dairy cows was less in the treated with oxytocin than control group (23.1% vs 34%). However, results of several studies indicate that cows with retained placenta have an increased incidence of metritis and that metritis require further treatment and does significantly affect subsequent fertility (Sandals et al., 1979, Richel et al., 1984 and Dohoo and Martin, 1984). Consequently, it was conceived that in herds that have a relatively high incidence of retained placenta. Administration of oxytocin immediately fol-

lowing normal or abnormal parturition may would have a beneficial and economic effects to minimize the problem and reduce the costs of further treatment **El-Azab et al. (1988)**.

It could be concluded that the Incidence of RFM, could be minimized by using synthetic oxytocin Intramuscular Injection at 6 hours after parturition repeat every 30 minutes for up to six injection or until the membranes did come away.

Table (1): Represent the No. and time relation in injected and controls groups.

Time of injection after parturition	6 hours ^{***}		6.5		7		7.5		8		8.5 [#]		9		PP metritis	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Treated	0/20	0	1/20	5	6/20	30	8/20	40	3/20	15	0/20	0	1/20	5	2/20	10
Control	0/20	0	0/20	0	1/20	5	2/20	10	0/20	0	1/20	5	0/20	0	6/20	30

* No. of retained foetal membrane injected with synthetic oxytocin

** No. of R.F.M injected with saline .

*** 6 hours : time spend from delivery of faetus to 1st injection .

8.5 = end time of 6 repeat injection .

pp : postpartum

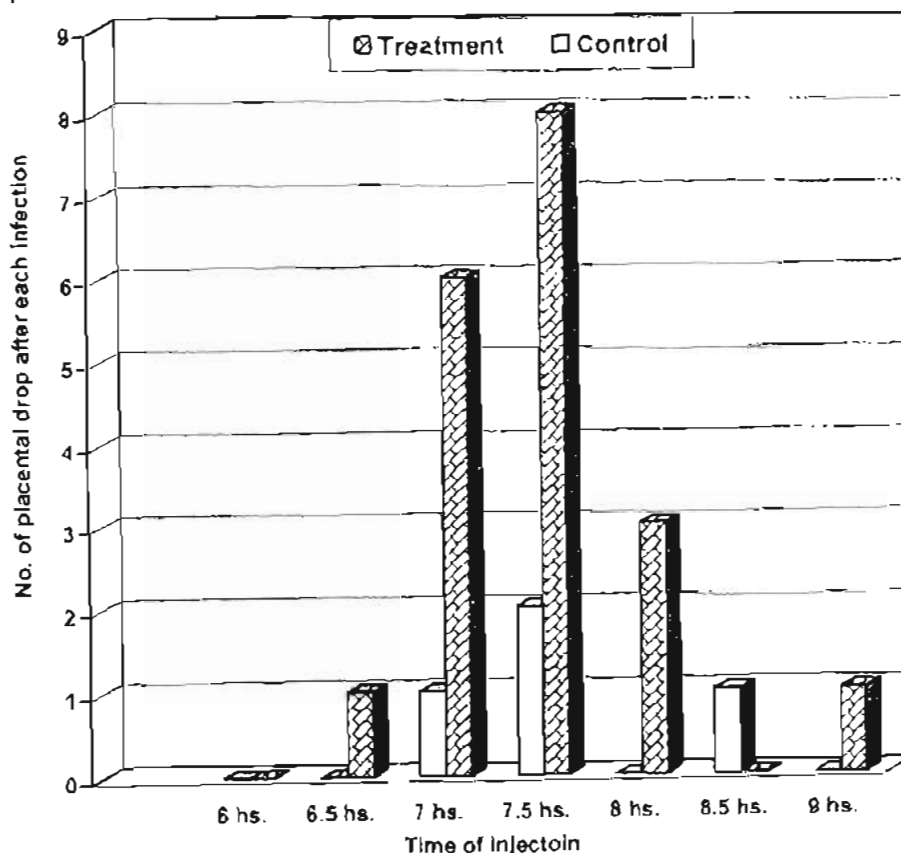


Fig. (1): Represent time of injection 6 hours after delivery.

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الملخص العربي

الحقن العضلي المتكرر بببتيد ثمانى مخلق (مطابق للأكسيتوسين هرمون) لتقليل إحتباس المشيمة فى الجاموس الحلاب

توفيق بركات

نسم التوليد والتناسل والتلقيح الاصطناعى كلية الطب البيطرى - جامعة الزقازيق

أجريت هذه الدراسة لتقييم تأثير الحقن العضلي المتكرر بواسطة بببتيد ثمانى مخلق (مطابق للأكسيتوسين) كل ثلاثون دقيقة لمدة ستة حقنات متتالية أو نزول المشيمة والحقن يبدأ بعد ٦ ساعات من الولادة ومازالت المشيمة موجودة داخل الرحم، وقد تم علاج عشرون جاموسة حلابة ومازالت المشيمة موجودة داخل الرحم وتم مقارنتها بعشرين جاموسة حلابة ومازالت المشيمة موجودة داخل الرحم أخرى تلقت ستة حقنات علي نفس الفترات حقناً بواسطة محلول ملحي (كمجموعة ضابطة) لوحظ أن أغلب الحالات المحقونة بواسطة الأكستوسين المخلق إستجابت عند الحقنة الرابعة، كما كان معدل حدوث الالتهاب الرحمى أقل فى المجموعة المعالجة (١٠٪) عنها فى المجموعة الضابطة (٣٠٪).

ولذلك ننصح باستعمال الأكستوسين المخلق لتقليل من إحتباس المشيمة فى الجاموس الحلاب بعد التأكد من دخولها مرحلة إحتباس المشيمة.