

EFFECT OF GONADOTROPIN RELEASING HORMONE ON REPRODUCTION PERFORMANCE OF BUFFALOES WITH RETENTION OF FETAL MEMBRANES

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Key word: GnRh- Buffaloes - RFM- Receptal®

ABSTRACT

This study was performed on 64 Iraqi female buffaloes suffered from Retained fetal membranes in - Karbala province on the period from December 2012 until December 2013 with different ages. These animals were divided randomly into two groups. The treated group(36) buffaloes were given Receptal® (GnRh) 0.021mg/5 ml/ IM on day “14 “ postpartum .while the other “control group” (28) buffaloes were injected with (5 ml) distilled water also on day (14) postpartum. The response in the (GnRh) treated group(decrease of the first postpartum estrus and decreased open days) records 52.3 ± 16.4 days for the first postpartum period compared with 74.7 ± 21.8 days of control group. While service per conception showed 1.9 ± 1.2 to the GnRh treated group compared to 2.4 ± 1.6 of the control group. The days open in the GnRh treated group was $88.6\% \pm 12.5$ compared to 123.2 ± 25.4 in the control group. The statistical analysis showed that GnRh treated group showed significant shorter postpartum period than control group, in case of first postpartum period and open days. While the number of services per conception showed no significant difference.

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INTRODUCTION

Buffaloes are characterized by low reproductive efficiency as they achieve longer calving intervals (20). Retained fetal membranes causes considerable economic losses in the herd due to decreased milk production, illness and treatment cost, beside a decreased market value of the animal [4, 1,]. Several attempts have been made to adopt exogenous treatment with gonadotrophic releasing hormone (GnRh) for inducing ovulation and resumption of ovarian activity in animals suffering from reproductive disorders (11,25, 26).

There are many methods of treatment of RFM, one of these methods is left without treatment (24). In our study we use hormonal method, by using GnRh hormone (

Receptal®)- ' Intervet B.V. Boxmeer - Holland' to compare between the "No treatment" and the usage of GnRh.

GnRh is a deca peptide produced by the hypothalamus in a pulsatile manner and affects the release of LH and FSH from the pituitary gland. Recent advances have greatly contributed in establishing the clinical efficiency of GnRh analogues as estrus inducers and ovulation inducing agents (1, 2). Administration of GnRh during the early postpartum period has increased early ovulation, but the effects of the interval from calving to conception has been variable according to (3 ,4 and 5). IM injection of 5 ml (Receptal) GnRh in the 8th day can be applied to the buffaloes in order to restart ovarian activity. The administration of GnRh has been shown to reduce the frequency of ovarian cysts and decrease the incidence of culling due to infertility (6).

In recent studies GnRh treatment in buffaloes and cows with retention of fetal membranes resulted in shorter open intervals and reduced in the number of services per conception (8, 9). The aim of this study is to evaluate the reproduction performance of buffaloes with RFM following treatment with (GnRh) after 14 days of parturition and their effect on many reproductive parameters include , number of services per conception, pregnancy rate and days open .

MATERIALS & METHODS

The present study we used 64 Iraqi buffaloes suffered previously from RFM. They were aged between 3-6 years old. Thirty six cows treated with Receptal (GnRh) 0.021mg /IM in a single dose in day 14 postpartum and these animals represents the treated GnRh group. 28 cow buffaloes "control group" injected with 5ml of Distal water on Day 14 postpartum and considered as a controlled group . The first estrus cycle (postpartum) and number of services per conception were recorded, the pregnancy rate and days open in two groups to know the effect of GnRh treatment on reproductive parameters in buffaloes with RFM compared with control group which is not treated with GnRh for analysis data were arranged in two groups using Means, standard deviation, f-test with level $P < 0.05$ (10).

RESULT AND DISCUSSION

It was reported that RFM is a reproductive abnormality unique to cows and buffaloes among other domestic ruminants (30). In buffaloes with RFM, these membranes keep the cervical canal open and the uterine lumen distended, hence inhibiting normal uterus contractions. At the same time, the fetal membranes hang out of the vestibulum readily exhibited for faeces and other environmental contaminants and predispose for uterine infections and it was associated with toxic puerperal metritis in 52.4% of affected buffalo cows(29). Bosu (1982) found that GnRH given 15 day Postpartum improved reproductive performance of cows with retained placenta.

Treatment with GnRH significantly increased the rate of involution, as reported previously (7, 16, 25).

The result as showed in table (1) a comparison between the treated groups with GnRh and control, the first postpartum estrus were record a significant difference ($P<0.05$) compared with the control group , This result was in agreement with (12,13, 14,15 and 16). The service per consumption were showed no significant difference between two groups (17, 18). The days open in the treated group was recorded a significant difference ($P<0.05$) compared with control . These results are agreed with (19, 21,22and 23). Incidence of RFM causes a deleterious effect on fertility and milk productivity of cows (27). Swiefy (2003) found that Friesian cows with repeated breeders under Egyptian conditions had significant ($P <0.05$) longer intervals of postpartum uterine involution (3). The immediate benefits of treatment may be cost-effective in addition to reducing culling and replacement costs. Careful examination of the reproductive organs accompanied by GnRH treatment may be appropriate in some herd management programs(12).

Table - 2- showed the pregnancy rate, Nature of parturition, Sex of offspring and the viability of fetuses. Pregnancy rate in treated group was 91.6% compared to the control group 78.5%, the nature of parturition in the treated group 84.8% was normal 15.2% was dystocia. In the control 75% normal parturition 25% dystocia. The sex ratio of the offspring in case of GnRh treatment was 54.5%, while in case of control group was 45.9%. The viability of fetuses 93.9% was alive with 6.1% was dead, while in case of the control 87.5% was alive with 12.5% was dead.

Further studies are needed to focus on appropriate doses of gonadotropins to re-maintain the indigenous hormonal balance.

Table-1- Reproductive parameters of GnRh- treated cow buffaloes and control

Reproductive outcome parameter	GnRh treat "First group"	Non treated (control) "Second group"
First postpartum estrus(M±D)/day	52.3±16.4 a	74.7±21 b
Service per conception(M±D)	1.9±1.2 a	2.4±1.6 b
Days open(M±D)	88.6%±12.5 a	123.2±25.4 b
Cow buffaloes excluded for fertility %	3/36 (8.3%)	4/28 (14.2%)

Different letters means significant difference ($P< 0.05$)

Table -2- pregnancy rate, nature of parturition, sex & viability of offspring.

Groups	Pregnancy rate		Nature of parturition		Sex of offspring		Viability	
	NO.	%	N	D	M	F	L	D
Treated(GnRh) "First group"	33/36	91.6 a	22 84.8%	5 15.2%	18 54.5%	15 45.5%	31 93.9%	2 6.1%
Control "Second group"	24/28 b	78.5%	18 75%	6 25%	13 54.1%	11 45.9%	21 87.2%	3 12.5%
Total	57/64 89.0%		46/57 11/57 80.09% 19.1%		31/57 26/57 54.3% 45.7%		52/57 91.2% 8.8%	5/57

Different letters means significant difference ($P < 0.05$).

Abbreviations- N-Normal parturition, D- Dystocial, M- Male, F- Female, L- Live, D- Dead

RFM- Retained fetal membranes

دراسة تأثير هرمون (hRnG) على حالات احتباس المشيمة في الجاموس

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الخلاصة

البحث اجري على 64 جاموسه تعانى من احتباس المشيمة فى قرية العامريه احد القرى التابعه الى قضاء الهندية - محافظة كربلاء المقدسه. وقد اجريت للفترة ما بين كانون الثانى 2012 ولغاية كانون الثانى 2013، وكانت الاعمار تتراوح بين (3-6) سنوات. وقد قسمت الحيوانات الى مجموعتين ، المجموعه المعالجه اعطيت هرمون(رسيبال 5 مل) وتضم 36 جاموسه فيما كانت المجموعه الثانيه (الغير المعالجه) 28 جاموسه ، وقد اعطيت 5 مل ماء مقطر . وكلا المجموعتين عولجت باليوم 14 بعد الولاده.

تم تقييم النتائج التى حصلنا عليها من خلال متابعة وحساب دورة الشبق اللاحقه، وكذلك متابعة الحمل اللاحق(بعد الولاده) عن طريق الجس بواسطة المستقيم. وقد اظهرت الحيوانات ، المعالجه فرقا معنويا بنسبة $P < 0.05$ فى حال اول شبق بعد الولاده حيث اظهرت المجموعه المعالجه اول شبق بعد الولاده(52.3)يوم ، مقارنة بمجموعه السيطره(74.7) يوم، وكذلك عدد الايام المفتوحه فى المجموعه المعالجه كانت (88.6)يوم، مقارنة بالمجموعه الغير المعالجه(123.2) يوم. ولكن لم تظهر ايا من كلا المجموعتين فرقا يذكر فى حال عدد مرات

التسفيد حيث كان في المجموعه المعالجه (1.9) مره، مقارنة بالمجموعه الغير المعالجه(2.4)مره. من خلال هذه المعطيات تؤكد الدراسه اهمية اعطاء هرمون hRnG لعلاج حالات احتباس المشيمه.

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