Induction of parturition in Iraqi buffaloes

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Abstract

The present study was conducted on 43 pregnant buffaloes with an average of 290-295 days gestation period according to their breeding dates in different areas of Baghdad province from 2006-2011, this ages ranged from 3-4 years. The buffaloes were divided into four groups randomly according to the programs of their treatment .1st group (11buffaloes) were injected with 750µg (3ml) of estrumate intramuscular (IM) in one dose. The 2nd group (12 buffaloes) injected with 40 mg of dexamethasone (IM) in one dose also. The 3rd group (10 buffaloes) injected with 15 mg of estradiol benzoate (IM). The 4th group injected with estrumate 750µg +dexamethasone 40 mg (IM) in the same time. The results showed that the responsive buffaloes were 9 (81.8%), 11 (91.6%), 9 (90%) and 10 (100%) in the 1st, 2nd, 3rd and 4th groups respectively. The results showed a significant difference between ($p<0.01$) the 4th group in comparison with 1,2,3 groups. The duration between initiation of treatment to the induction of parturition showed a significant difference between ($p<0.01$) 2nd group as compared with 1,3,4 groups. Retention of fetal membranes were recorded in 25.54% of animals and the occurrence of dystocia was 17.94%. The viability of newborn (calves) was 94.8% as compared with dead calves 5.2%. It was concluded that the use of PGF2α or dexamethasone alone or combination was safe and effective for induction of calving.

إحداث الولادة في الجاموس العراقي

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الخلاصة

أجريت الدراسة على 43 جاموسة في فترة حمل تراوحت مابين 290–295 يوم بالاعتماد على تاريخ التسفيد في مناطق مختلفة من بغداد للفترة من 2006–2011، تراوحت أعمارها بين 3–4 سنوات، قسمت الحيوانات إلى أربعة مجاميع عشوائيا تبعا للبرنامج العلاجي المستخدم. عولجت المجموعة الأولى (11 جاموسة) بحقن 750 مايكوغرام (3 مل) من الاسترواميت بالعضل بجرعة واحدة، أما المجموعة الثانية (12 جاموسة) فقد حقنت 40 ملغم من الدكساميثازون بالعضل وبجرعة واحدة أيضا، أما المجموعة الثالثة (10 جاموسة) فقد تم حقنها 15 ملغم من الاسترادايول بنزويت بالعضل، المجموعة الرابعة (10 جاموسة) تم معالجتها باستخدام خليط من الاسترواميت (750 مايكروغرام) والدكساميثازون (40 ملغم) بالعضل في نفس الوقت. أظهرت النتائج ان نسبة الاستجابة كانت 9 (81.8%)، 11 (91.6%)، 9 (90%) و10 (100%) للمجاميع 1،2،3 و4 على التوالي. كانت نسبة الاستجابة أفضل بمستوى معنوية 0.01 في المجموعة الرابعة مقارنة مع المجاميع 1،2 و3 وان الفترة بين بدء المعالجة والاستجابة (حدوث الولادة) كانت أفضل بمستوى معنوية 0.01 في المجموعة الثانية مقارنة مع المجاميع 1 ،3 و4. أما نسبة احتباس الأغشية الجنينية فقد وصلت إلى 25.54% لجميع حيوانات الدراسة، فيما سجلت نسبة عسر الولادة 17.94%، أما حيوية المواليد فقد كانت 94.8% بالنسبة للحي مقارنة مع 5.2% من المواليد الميتة. لذا نستنتج من الدراسة الحالية ان استخدام البروستوكلاندين أو الدكساميثازون كلا على حدة أو معا كان أمنا وفعالا في إحداث الولادة.

Introduction

It's believed that initiating signals for hormonal changes that terminate pregnancy come from the foetus through an increase in secretion of cortisol. The first report on the use

of corticoids to induce premature parturition in cattle and buffalo was reported by some workers (1,2). Elective induction of parturition has been employed several years to insure the presence of professional assistance at the time of calving (3,4). Induction of calving has been used for management of high risk pregnancies, research, teaching and convenience (5,6,7). There are various programs for induction of parturition and the main methods included hormonal treatments i.e. PGF2α; Dexamethasone and estradiol (2,7,8). This study was aimed to show the role of PGF2α, Dexamethasone and estradiol on induction of parturition in buffaloes at 290-295 days of gestation period and to observe their effect up on livability of calf and dam.

Materials and Methods

This study was performed on 43 pregnant buffaloes in different regions of Baghdad province include Al-Thahab Al-Abiad, Al-Nahrawan and Al-Fudeyliah villages with an average of gestation period 290-295 days according to their breeding dates during the period from 2006-2011. Their ages ranged from 3-6 years. The buffaloes were divided randomly into 4 groups, 1st groups included 11 buffaloes injected with estrumate (Schering Plough Animal Health-Germany) 750µg (IM) in one dose. 2nd group (12 buffaloes) injected with dexamethasone (Essex Animal Health Friesoy the. Germany) 40mg (IM) in one dose also. 3rd group (10 buffaloes) given estradiol benzoate (Intervet –Holland) 15 mg (IM). 4th group (10 buffaloes) injected with combination of dexamethasone 40 mg (IM) and estradiol benzoate 15 mg (IM) at the same time. The number of responsive buffaloes, duration of response, and nature of parturition, viability and sex of new born as well as to their complication (retention of fetal membrane or dystocia) was recorded. Mean, Standard error, Qi square and F test were used for analysis of data of study.

Results

The results showed in table 1 that the percentage of responsive buffaloes were 81.8%, 91.6%, 90% and 100% on the 1st, 2nd, 3rd and 4th groups respectively, but the duration of response was shorten ($P<0.01$) in the 1st and 3rd groups (44.26 ±3.62, 46.54±4.11 hours) in comparison with 2nd and 4th groups (22.45±2.16, 38.24±2.36 hours). The viability of the calves was 100% in the 1st and 3rd groups and 90% in 2nd and 4th groups. Table 2 reveals 2 cases of dystocia in the 1st group, 3 cases in 2nd group and one case in 3rd and 4th groups due to abnormal presentation, position and posture. There was a placental retention in 4,3,3 and 4 cases in the 1st, 2nd, 3rd and 4th groups respectively.

Table (1) Showed type of treatment, responsiveness and duration of parturition

Groups	No. of animals	Type of treatment	Responsive animals	Duration of parturition (h) M±SE
1	11	Estrumate 750µg 3ml/IM	9 81.8%	44.26±3.62 a
2	12	Dexamethasone 40mg /IM	11 91.6%	22.45±2.16 b
3	10	Estradiol benzoate 15mg /IM	9 90%	46.54±4.11 a
4	10	Estrumate + Dexamethasone	10 100%	38.24±2.36 c
Total	43	----------	39/43 90.96%	----------

*** Similar letters showed no significant differences.**

****Different letters showed significant differences (P <0.01).**

Table (2) Showed the nature of parturition, viability and sex of calves and complications

Groups	Nature of parturition		Viability of fetuses		Sex		Retention of fetal membrane	
	N	D	L	D	M	F	No.	%
1	7 a 77.7%	2 22.3%	9	----	5	4	4	44.4
2	8 b 72.7%	3 28.3%	10	1	6	5	3	27.3
3	8 c 88.8%	1 11.2%	9	-----	6	3	3	33.3
4	9 c 90%	1 10%	9	1	5	5	4	40
Total	32 82.05%	7 17.95%	37 94.8%	2 5.2%	22 56.4%	17 43.6%	10/39	25.54

N=normal, D=dystocia, L=live, D=dead, M=male, F=female
***Different letters showed significant differences (P<0.01).**

Discussion

The responsive buffaloes in the groups 2 and 3 that injected with dexamethasone and estradiol was 91.6% and 90% but the responsive buffaloes in the groups 1 and 4 was 81.8% and 100%. This results showed significant differences ($p<0.01$) between group 4 and groups (1,2,3), and similar observation have been made by 7,8 and 9. In the present study, it was recorded that the overall duration between commencement of treatment to induction of parturition was 44.26±3.62, 22.45±2.16, 46.54±4.11 and 38.24±2.36 in the 1st, 2nd, 3rd and 4th groups respectively. The duration was significantly higher ($P<0.01$) in group 2 in comparison with G1, G3 and G4 and significantly higher ($P<0.01$) in group 4 in comparison with groups 1 and 3 and this results were agree with 7, 10, 11. The overall occurrence of dystocia was significantly higher ($P<0.01$) in group 1 compared with groups 2, 3 and 4 and the occurrence of dystocia was 17.94 than the normal range 3.3% as reported by 7, 10, 12. It was recorded that the incident of retention of fetal membranes was 25.54% and this results were agree with 7, 12, 13. It was concluded that dexamethasone alone or in combination with PGF2α or PGF2α alone can be used for emergency induction of parturition with lower incidence of dystocia, retention of fetal membranes and mortality of calves.

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