Post Partum Pyometra In Iraqi Buffaloes : Clinical and Therapeutical Study

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Summary

The study was conducted on 118 buffaloes suffering from opened pyometra 20-30 days post partum in AL-thahab AL-abiadh village west of Baghdad Province, their ages ranged from 3-6 years.

They were divided randomly in to 4 groups . Group one included (27 buffalo) treated with 15 mg of $PGF_2\alpha$ (Prosolven)^R IM, The 2nd group (32 buffalo) treated with 15 mg of $PGF_2\alpha$ and 15 mg estradiol benzoate IM . The 3rd group (29 buffalo) treated with 15 mg of $PGF_2\alpha$ and 50 . 100 ml of lugol's iodine 0.5 % intra-uterine.

The 4th group (30 buffalo) treated with 15 mg of $PGF_2\alpha$ and 4 gm of Oxyteracycline 20% (20 ml of Oxy. plus 50-100 ml disilled water) intra-uterine.

Results showed that the 1st and 2nd response in 4 treated groups were 66.2%, 84.3%, 79.3% and 86.6% respectively .The response was high in the 2nd and 4th group ($P < 0.01$). These responses represent also the conception rate for these 4 treated groups. The means ± SE of days open for above groups were 98.4± 6.4 ,84.2 ± 4.4 ,97.3 ± 3.8 and 82.7 ± 4.6 respectively ,the second and fourth group were significant ($P < 0.01$).

The number of newly born calves was 94 calves (46 male,48 female) The alive were 87(92.6%) and dead 7 (7.4%), so we conclude that the $PGF_2\alpha$ has an effective role in the treatment of pyometra in buffalo and it's effect increasing when it combined with oxytetracycline 20% and estradiol benzoate together .

تقيح الرحم بعد الولادة في الجاموس العراقي : دراسة سريرية و علاجية

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الخلاصة

اجريت الدراسة على118 جاموسة كانت تعاني من تقيح الرحم المفتوح و خلال 20–30 يوما بعد الولادة . في قرية الذهب الأبيض الى الغرب من محافظة بغداد وتراوحت اعمارها بين 3–6 سنوات . قسمت هذه الحيوانات عشوائياً الى اربعة مجاميع .حقنت المجموعة الاولى (27) جاموسة في العضل بجرعة 15 ملغم من البروستاكلاندينات من نوع الفا $PGF_2\alpha$ (Prosolven)^R ، المجموعة الثانية (32) جاموسة عولجت بـ 15 ملغم من $PGF_2\alpha$ و بـ 15 ملغم من هرمون الاسيترادیول بترودیت في العضل أيضا. المجموعة الثالثة (29) جاموسة حقنت بـ15 ملغم من $PGF_2\alpha$ اضافة الى حقن داخل الرحم بمحلول اليود المخفف 0.5 % و بمقدار 50– 100 مل حسب الحاجة . المجموعة الرابعة تمت معالجتها بـ 15 ملغم من $PGF_2\alpha$ إضافة إلى الحقن داخل الرحم بـ 4 غم من الاوكسي تتراسكلين 20% (20 مل من المضاد الحياتي + 50 – 100 مل من الماء المقطر). أظهرت هذه المعالجات الأربعة نسبة استجابة بلغت 66.2%، 84.3% ،79.3% و 86.6% على التوالي و لصالح المجموعة الثانية و المجموعة الرابعة و بأهمية احصائية ($P < 0.01$) . و قد مثلت هذه الاستجابات نسبة الحمل في هذه المجاميع . بلغ عدد الايام المفتوحة (المعدل ± معامل الخطأ القياسي) لهذه الحيوانات 98.4 ± 6.4 ، 84.2 ± 4.4 ، 97.3 ± 3.8 و 82.7 ± 4.6 يوماً على التوالي و لصالح المجموعة الثانية و الرابعة ($P < 0.01$) .

بلغ عدد العجول المولودة 94 عجلاً (46 ذكر ، 48 انثى) و كان عدد العجول الحية 87 عجلاً و بنسبة (92.6 %) اما عدد العجول الميتة فكان 7 و بنسبة 7.4 %) .نستنتج من البحث بأن البروستاكلاندينات من نوع $PGF_2\alpha$ دوراً مؤثراً في علاج تقيح الرحم في الجاموس و يزداد هذا التأثير اذا ما أعطى مع الاوكسي تتراسايكليين 20 % و هرمون الايستراديول بنزويت سوية .

Introduction

Buffaloes play an important role in farmer's economy as asource of milk, meat and skin (1) .Pyometra is an infectious uterine disorder and mostly occurs post partum in buffaloes .It's characterized by the accumalation of purulent exudate in the uterus and by persistence corpus luteum with failure of estrus due to supperssion of uterine luteolytic factor ($PGF_2\alpha$) secondary to the sever endometritis (2).The incidence of buffalo pyometra was 0.58 – 6.3% (3,4).

pyometra in buffaloes often followed an acute endometritis due to difficult calving and usually associated with the retention of the fetal membranes (5). Many treatment had been used in cattle and buffaloes (5,6,7) .

This study presents the postpartum pyometra in Iraqi buffaloes and to investigate the various treatments upon pyometra.

Materials and Methods

The study was conducted in AL- thahab AL-abiadh village ,west of Baghdad province ,on 118 Buffalo , their ages range from 3 – 6years .The duration of the study was preformed from 2001 –2004 .All buffalo were kept in the same enviroumental and hygienic conditions and subjected to the same management .

Cases of pyometra were diagnosed carefully by external examination with rectal palpation .The animals were divided randomly in to 4 groups . These groups were 27,32, 29 and 30 buffalo represented first ,second ,third and fourth group respectively

The division of the animals in to 4 groups was done according to the type of used treatment . The 1st group (27 buffalo) was treated with PGF2α (prosolven) 15 mg intramuscular (IM) 20 –30 days post partum , the animals were followed for 3 weeks and the unresponsive completely animals were retreated. The unresponsive animals for two successive treatments were excluded from the study. The second group (32 buffalo) was treated with PGF2α 15mg and estradoil benzoate 15 mg IM at the same time and the retreatment of unresponsive animals as in the 1st group was done .The third group (29 buffalo) was treated with PGF2α 15 mg plus lugol's iodine solution (0.5 %) 50 –100 ml intra uterine and according to the size of the uterus. Retreatment of unresponsive animals as in the previous two groups . The fourth group (30 buffalo) was treated with PGF2α 15 mg IM and infusion of 4 gm from oxytetracycline 20% intra-uterine.

The reproductive efficiency criterion for the treated animals were included the following , services per conception, days open , type of birth ,sex and viability of new born calves were recorded (8)

1- Services per conception = $\dfrac{\text{NO. Services in all}}{\text{Total conception}}$

2- Days open = $\dfrac{\text{Days calving to}}{\text{Total cows}}$

T test and chi square was conducted for analyzing the data (9).

Results

The results were repersented in table (1) and table (2) . Table 1 reveals that the response to the treatment with $PGF_2\alpha$ (prosolven) 15 mg IM.Was effective in the all four groups and the percentage of response range from 40-63 % in the first trail of treatment.

The combination of $PGF_2\alpha$ and other treatment was also effective in post partum pyometra in all treated buffaleos,the percentage responsive animals was 66- 86%.

Best results were achieved when $PGF_2\alpha$ and estradiol benzoate (15mg) or $PGF_2\alpha$ and 4 gm of oxytetracycline 20% intrauterine infusion were administrated to the second and fourth group (84-86 %) in comparison (66 – 79%) in the first and third group .

Table 2 reveals that the number of services per conception was (2.2 ± 0.8) ,(2.3 ± 1.1) in the second and fourth group while it was (3.1 ± 1.1) ,(3.4 ±1.3) in the 1^{st} and3^{rd} groups.

The days open were less in 2^{nd} and 4^{th} groups (82.7 ± 4.6) , (84.2 ± 4.4) in comparison in 1^{st} and 3^{rd} group (98.4 ± 6.4),(97.3 ± 3.8).

The number of newly born calves was 94 calves (46 male, 48 female) out of 118 treated buffalo .

The alive calves were 87(92.6 %) and dead calves were 7 (7.4 %) from the total born calves.

Table 1: Reveals the type of treatment and degree of response in postpartum pyometra in buffaloes .

Groups	No. of treated animals	Type of treatment	First response		Second response		Total response for all treated buffaloes	
			No.	%	No.	%	No	% (conception rate)
1	27	Prosolven 15 mg	11	40.7	7	25.9	18	66.2 c
2	32	Prosolven 15 mg + estradiol benzaote 15 mg	19	59.3	8	25	27	84.3 a
3	29	Prosolven 15 mg + Lugol's Iodine	17	58.6	6	20.6	23	79.3 b
4	30	Prosolven 15 mg + 4 gm oxytetracycline 20%	19	63.3	7	23.3	26	86.6 a
Total	118		66	55.9	28	23.7	94	79 .6

Similar letters not significant ,Different letters significant P < 0.01

Table 2: Reveals the effect of treatment on reproductive efficency criteria for fertility ,sex and vaibility of new born calves with mean ± SE

Groups	No. of treated animals	No. of conceived animals	Services per conception	Days open	Sex of born calves		Viability	
					Male	Female	Alive	Dead
1	27	18	3.1± 1.1	98.4 ± 6.4 a *	7	11	17	1
2	32	27	2.2 ± 0.8	84.2 ± 4.4 b**	13	14	25	2
3	29	23	3.4 ± 1.3	97.3 ± 3.8 a *	11	12	22	1
4	30	26	2.3 ± 1.6	82.7 ± 4.6 b**	15	11	23	3
Total	118	94	-	-	46 48.9%	48 51.1%	87 92.6%	7 7.4%

Discussion

The all over response was (84.3 and 86.6%) in the 2nd and 4th group .This response seems to be to the role of estrogens in evacuating the uterine contents by increasing the uterine blood supply and increasing the uterine muscles contraction in the 2nd group in addition to the effect of PGF2a (10) and to the effect of oxytetracycline and it's maintenance therapeutic levels in the uterine lumen for 36 hours more than other antibiotics in the 4th group (11) .

The conception rate (66.6%) in the first group (table1). Was in agreement with (6) who reported 65% conception rate in cows treated from pyometra with various dose of $PGF_2\alpha$. The conception rate in third group was high (79.3%) more than 1st group .This result may be related to the lugol's iodine solution by releasing PGF2a from the uterine endometrium and in consequence stimulation muscles contraction and tone (10) beside it's combination with $PGF_2\alpha$ (12) .The conception rate (84.3%) and days open (84.2%) in the 2nd group were comparable in pyometric cows treated with estradiol cypionate and $PGF_2\alpha$ (13),So the combination of $PGF_2\alpha$ and estradiol benzoate was effective in reducing days open and increasing conception rate in this group .

The best results were seen in the 4th group , conception rate (86.6 %) and days open (82.7) by using $PGF_2\alpha$ and oxytetracycline 20% otherwise ,(12), recorded days open 102 and services per conception 3.4 in postpartum bovine pyometra treated with $PGF_2\alpha$ and oxytetracycline 20%.

We concluded that the $PGF_2\alpha$ and it's combination with estradiol benzoate and 4 gm of oxytetracycline 20% intrauterine infusion was effective in the treatment of postpartum pyometra in buffaloes and this may be related to the role of PGF2a and estradiol benzoate in increasing the uterine contraction with rapid evacuation of it's contents and reducing uterine infection with oxytetracycline 20 % .

References

1. Jainudeen ,M.R.(1996).Reproduction in water buffaloes In .Arthur, G.H.; Noakes, D.E.; Pearson ,H. and Parkinson,J.J. Veterinary Reproduction and Obstetrics.7th ed. Philadelphia Saunders co. 667 –677.
2. Sane,C.R.(1982).Reproduction in farm animals (Theriogenology) Varghese puplishing house, Bombay.
3. Rao,A.V.N. and Kesavamurthy,A. (1971).Studies on Reproductive Disorders in Buffalo cows of Andhra pradesh.II . Incidence due to infectious causes. Ind.Vet.j.48: 1135-1141.
4. Alwan, A.F.; Abdul-Hameed. A.N. and Khammas, D.J. (2001). A macroscopical study of Abnormal Genitalia of Iraqi Female Buffaloes. Iraqi.J.of Vet.Sci.Vol. 14.no.1 .

5. Naryana,K.(1986). The clinical efficiency of low dose cloprostenol. A prostaglandine F2α analogue in infertile conditions in cattle and buffaloes .Ind.Vet.J.63: 556 – 560.
6. Gustafsson, B.; Backstom, G and Edgvist, L.E.(1976).Treatment of bovine pyomerta with prostaglandin F2α.An evaluation of a field study. Theriogenology 6:45.
7. Baishy ,N.; Saharia, K.K. and Rajkonwar ,C.K.(1984). Therapeutic use of prostoglandin F2α in the treatment of bovine pyomerta. Ind.Vet.J. 61, 246 – 249.
8. Morrow.D.A.(1980). Analysis of records for reproductive herd health programs page,560 In .Current therapy in theriogenology. Edited by David, A.Morrow. W.B. Saunders company .
9. Snedcor, G.W. and Cochran, W.C. (1980).Statistical Methods,7th ed .Iowa State University.
10. Roberts, S.J.(1987).Veterinary Obstetric and Genital Diseases .3rd ed .Ithaca, NewYork.
11. Kendrick, J.W.(1978). Dairy cattle fertility The cause, prevention and treatment of uterine disease. Report of California Milk Advisory Board.
12. Al-Hamedawi, T.M.; AL-Yasiri, E.S. and AL-Timimi, I.H. (2002). Postpartum bovine pyomerta: clinical and therapeutical study. The vetrinarian,Vol.12, No.(1).
13. Fazeli, M. and Olsen, J.D. (1980). Comparison of treatment of pyometra with estradiol cypionate or cloprostenol following infusion or non-infusion with nitrofurazone. Theriogenology V.14,339-347.