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## USE OF PROSTAGLANDIN F2a IN THE TREATMENT OF PYOMETRA IN BUFFALO-COWS.

(With One Table)

By

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### استخدام البروستاجلاندين فى علاج التهاب الرحم الصيدى فى الجاموس

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أجريت هذه الدراسة لبيان تأثير استخدام البروستاجلاندين فى علاج عدم الشيوخ نتيجة لبقاء واستمرار الجسم الاصفر المصاحب لالتهاب الرحم الصيدى فى الجاموس .  
أجريت هذه الدراسة على عدد ٣٠ جاموسة ( عدد ٢٠ جاموسة تم حقن ٨ منها ٢٥ مجم و ١٢ تم حقنهم ٥٠ مجم بروستاجلاندين فى ١٠+ جاموسة ضابطه تم حقنها بمحلول الملح .  
كانت الاستجابة للعلاج أسرع فى الجاموس المعالج بجرعة ٥٠ مجم ، وبالنسبة لجرعة ٢٥ مجم استجاب للعلاج عدد ٢ جاموسة من العدد الكلى ٨ بنسبه ٢٥% وذلك بالنسبه لحالات التهاب الرحم الصيدى بعد الولاده وعددها ٨ . وبالنسبه لجرعة ٥٠ مجم ، استجاب للعلاج عدد ٥ جاموسة من العدد الكلى ٨ بنسبه ٦٢% وذلك بالنسبه لحالات التهاب الرحم الصيدى بعد الولاده وعددها ٨ جاموسة أخرى وكذلك استجاب للعلاج عدد ٣ جاموسة من العدد الكلى ٤ بنسبه ٧٥% وذلك بالنسبه لالتهاب الرحم الصيدى بعد الوثب الطبيعى أو التلقيح الصناعى .  
كانت النسبه الكليه للحمل نتيجة استخدام البروستاجلاندين فى ٢٣% .

SUMMARY

Investigations were carried out to study the effect of PGF<sub>2a</sub> on anestrus due to persistent corpus luteum with uterine pathology (pyometra) in buffalo-cows. A total of 30 buffalo-cows were used in the present study (20 treated + 10 control). Treated buffaloes were injected with 25.0 and 50.0 mg of lutalyse for each of 8 (suffered from opened pyometra) and 12 (8 opened + 4 closed pyometra) respectively. The control buffaloes were injected with physiological saline. The response to treatment was rapid in buffalo-cows treated with 50.0 mg Lutalyse. Out of 8 buffalo-cows (opened pyometra) only two responded to a dose of 25.0 mg (25%). Out of 8 buffalo-cows (opened pyometra) only 5 responded to a dose of 50.0 mg (62.5%). Out of 4 (closed pyometra) only 3 responded to a dose of 50.0 mg (75%). The recovery period to a dose of 50.0 mg Lutalyse was 12 days. The overall pregnancy rate was 30%.

Keywords: Prostaglandin F<sub>2α</sub>, pyometra, buffalo.

INTRODUCTION

Pyometra in cattle is characterized by the accumulation of pus or mucopurulent mass in the uterus, with the presence of a retained corpus luteum and failure of estrus due to suppression of the endometrial luteolytic factor secondary to the severe endometritis (ROBERTS, 1982). GUNZLER and SCHMALFFLDT (1979) treated 93 cows of various breeds suffering from pyometra with single i.m. injection of 2 ml estrumate containing 0.5 mg cloprostenol whereafter complete evacuation of the uterus took place in 90 cows (96.8%) and within 3-9 days. 35.7% of the cows became pregnant after a single cloprostenol treatment. HUSSEIN (1981) injected 16 buffalo-cows suffering from postpartum pyometra with 25.0 and 50.0 mg Lutalyse given as a single i.m. injection. He found that the most effective dose to induce luteolysis was 50.0 mg whereafter complete recovery followed within 10-15 days (80%). PGF<sub>2a</sub> was the best treatment for mucopurulent endometritis and pyometra and provided an effective alternative for the treatment of uterine infections (LUSKY, et al. 1984 and PAISLEY, et al. 1986). NARAYANA (1986) injected PGF<sub>2a</sub> in a dose of 25.0 or 50.0 mg in cattle and buffalo cows with infertility problems. He found

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that, there was no significant difference in the estrus and pregnancy responses to the two doses. The overall estrus response was 72.4% in cattle and 54.5% in buffaloes. Estrus occurred 1-10 days after injection and the animals were inseminated 12-18 hrs after observed estrus. The estrus and pregnancy responses in cattle and buffaloes with metritis were 70.9%, 56.3% and 66.7%, 64.3% respectively.

The present study was undertaken to study the use of prostaglandin F2a for the treatment of pyometra in buffalo-cows.

### MATERIAL and METHODS

#### Animals:

The animals used in the present study were 30 buffalo-cows suffering from pyometra either opened or closed with retained C.L. They were divided into 20 treated and 10 control. These animals were chosen from the patients of the Quesina and its surroundings at Monofia province. Their age ranged from 7-12 years. No unique nutritional or managerial conditions were observed. They gave from 5-7 breeding seasons and were apparently clinically healthy. Their newly born calves were allowed to suckle freely their mothers for about 40-60 days postpartum, then were twice daily hand milked.

A total of 16 buffalo-cows from the treated animals had a postpartum pyometra with a previous history of abnormal or difficult calving (dystocia), usually associated with retention of the fetal membranes and may have been followed by uterine prolapse. Diagnosis was based on the clinical observation, rectally, the uterus was found distended with different amounts of pus, its size could correspond to that of pregnancy from about 6 weeks to approximately 3 months and the rectal manipulation of the uterus might led to extrusion of purulent material from the vulva. The wall of uterus was thick and the contents were doughy. A retained C.L. could be palpated on one of the ovaries. Vaginal examination revealed the presence of purulent material in the cervix or in the anterior part of the vagina.

Out of the treated group, four buffalo-cows in which owner's complain was that they were in heat 3-4 months after the last parturition and were naturally served and after 3-4 months from the last service, pregnancy diagnosis revealed that the animals were suffering from closed pyometra (postcoital pyometra). Rectal examination revealed a uterus distended with amount of pus, its size corresponded to that of 3 month pregnancy and felt doughy in consistency with thickened wall

and a retained C.L. Could be palpated on the ovary. Asymmetry between the two horns was apparent.

The treated animals (n=20) were further subdivided according to the dose of prostaglandin \*(Lutalyse) administered into two subgroups: subgroup A, which included 8 buffalo-cows (opened pyometra) and were injected with 25.0 mg Lutalyse, and subgroup B, which included 12 buffalo-cows (8 opened pyometra + 4 closed pyometra) and were injected with 50.0 mg lutalyse. All treated animals were carefully examined rectally and vaginally and observed daily from 10-15 days till complete recovery. The period of recovery was recorded for each treated animal. The mating system of the studied buffalo-cows consisted of either natural mating by a private buffalo bull common to each village or by artificial insemination. The animals were rectally examined 60 days after the last mating or insemination for pregnancy detection.

The control animals included 10 buffalo-cows suffering from pyometra either opened or closed, and were injected with normal saline and examined daily, rectally and vaginally all over the period of the experiment. The uterus was distended with pus, its wall was thick and the contents were doughy, presence of purulent material in the cervix or in the anterior of the vagina. A retained C.L. was palpated on either ovaries.

The obtained data were statistically analysed according to SNEDECOR and GOCHRAN (1967).

## RESULTS

The obtained results of the treatment of pyometra in buffalo-cows with a single Varying i.m dose of 25.0 mg and 50.0 mg lutalyse are presented in table 1.

The response to treatment was rapid in buffalo-cows treated with 50.0 mg lutalyse with the evacuation of uterine contents and corpus luteum regression within 12 days. Out of 8 buffalo-cows (opened pyometra) only two responded to a dose of 25.0 mg (25%). Out of another 8 buffaloes suffering from opened pyometra only 5 responded to a dose of 50.0 mg (62.5%). Out of 4 (Closed pyometra) only 3 responded to a dose of 50.0 mg (75%). The overall pregnancy rate for treated animals was 30%. The period of recovery was short in buffalo-cows treated with 50.0 mg lutalyse (12 days) in comparison with those treated with 25.0 mg (15 days).

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### DISCUSSION

Pyometra in buffaloes often followed an acute endometritis due to abnormal or difficult calving and was usually associated with the retention of the fetal membranes. Any treatment should aim to eliminate the effect of the corpus luteum and to induce a normal estrus. This might lead to lymphocytic infiltration and the presence of mucus allowing the uterus to be flushed out (HUSSEIN, 1981). It was possible to use the luteolytic action of PCF<sub>2a</sub> in the cow to produce the quick regression of the puerperal corpus luteum, relaxation of the cervix and expulsion of the uterine contents (BACKSTROM *et al.*, 1974).

In the present study, varying dose levels of PGF<sub>2a</sub> (Lutalyse) had been tried in the treatment of pyometra in buffalo-cows. The effective i.m dose capable of inducing luteolysis was found to be 50.0 mg. Complete recovery was obtained within 12 days. The percent of cases which responded to the treatment was 62.5-75% when treated with a single i.m dose of 50.0 mg lutalyse. These obtained data were in agreement with those obtained by HUSSEIN (1981) who treated 16 buffalo-cows suffering from postpartum pyometra with either 25.0 or 50.0 mg lutalyse and found that the most effective dose to induce luteolysis was 50.0 mg and that complete recovery was obtained within 10-15 days and the percentage of response to single i.m dose of 50.0 mg PGF<sub>2a</sub> was 80%. Similar findings were observed by NARAYANA (1986) who injected PGF<sub>2a</sub> in a dose of 25.0 or 50.0 mg in cattle and buffaloes with infertility problems such as metritis and pyometra. The author found that the overall estrus response was 72.4 and 54.5% in cattle and buffaloes respectively and estrus occurred 1-10 days after injection.

In conclusion, the result of the present study indicated that, for treatment of pyometra (either opened or closed) in buffalo cows the most effective i.m dose of lutalyse capable of inducing luteolysis, relaxation of the cervix and expulsion of the uterine contents was found to be 50.0 mg.

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In conclusion, the result of the present study indicated that for treatment of pyometra (either opened or closed) in buffalo cows the most effective 1.0 mg dose of lutealys of inducing luteolysis, relaxation of the cervix and expulsion of the uterine contents was found to be 50.0 mg.

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Table(1): Treatment of Pyometra in buffalo-Cows with PGF<sub>2a</sub> (Lutalyse, Upjohn).

Pyometra	No. of affected buffalo-cow	PGF <sub>2a</sub> dose	No. of recovered animals	Period of recovery (days)	Percent recovered of total treated	No. of pregnant animals	Pregnancy rate %
Subgroup A. (opened pyometra)	8	25.0 mg	2.0	15	25%		
subgroup B. (opened pyometra)	8	50.0 mg	5	12	62.5%	4	50%
Closed pyometra	4	50.0 mg	3	12	75%	2	75%
Total	20		10			6	30%