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محاولات زيادة معدلات الاخصاب فى حالات  
التفويت بالجاموس والأبقار

محمد الحريرى ، محمد عمر ، كمال زكى

تتسبب ظاهرة التفويت بالجاموس والأبقار فى انخفاض معدلات الاخصاب لذلك درس الباحثون تأثير علاجها  
باستخدام محلول لوجول اليودى بمفرده أو بالاضافة الى المضادات الحيوية عن طريق الرحم قبل  
أو بعد التلقيح الصناعي ، ولقد نوقشت النتائج الايجابية والعوامل المؤثرة عليها .

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TRIALS FOR INCREASING CONCEPTION RATE IN REPEAT BREEDING BUPPALOES AND CATTLE  
(With 3 Tables)

By  
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SUMMARY

Repeat breeding in buffaloes and cattle reduce their reproductive efficiency. Therefore, evaluation of the effect of intrauterine infusion with Lugol's iodine and/or antibiotics before or after insemination for increasing their conception rates were tried and factors affecting the results were discussed.

INTRODUCTION

Repeat breeding in buffaloes and cattle is a great economic problem for the reduction of reproductive efficiency due to failure of fertilization (REARJEN, 1954 and ROBERTS, 1971) or early embryonic mortality (TANABE and ALMQUIST, 1953 and BHOSREKAR, 1973). Many causes are incriminated such as bacterial (MENGE, WINTER, Mc NUTT and CASIDA, 1961); viral (TANABE and ALMQUIST, 1953); nutritional (WITBANK and PAULKNER, 1970); hormonal (DAWSON, 1953); congenital (GUSTAFSSON, 1971) and/or unknown factors (ROBERTS, 1971).

Good results for treatment of this abnormality were obtained in cattle using intrauterine infusion with Lugol's iodine solution alone (MACKAY and THOMSON, 1958 and ZAKI, SABBER, FOUAD and ELWISHY, 1963) or penicillin and streptomycin (MILLS, 1958 and LUKTUK and JOSHI, 1961).

The present investigation was planned to evaluate the effect of intrauterine infusion with Lugol's iodine and/or antibiotics before or after insemination on the conception rate of repeat breeding buffaloes and cattle.

EXPERIMENTAL

A total number of 387 animals, 247 buffaloes and 140 cows, brought to Assiut A.I. Centre were used for this study. Case history, clinical examination, rectal and vaginal inspections and biometrics of the genital organs of each individual were carefully noticed and registered.

The animals were divided into seven experimental and control groups in the following manner:

Experiment I:

Each of eighty-two repeat breeding buffalo-cows was given 50ml. of Lugol's iodine solution 0.5% (1 gm. iodine, and 196 ml. distilled water) for two times of intrauterine infusion at 14- and 7-days before insemination.

Experiment II:

Each of forty three repeat breeding buffalo-cows was given the previous treatment as experiment I followed by antibiotics (1.800.000 I.U. procaine penicillin G and 2 gm. dihydrostreptomycin "Cid-Cairo" dissolved in 50 ml. dist. water) intrauterinally at 24 hours after insemination.

Experiment III:

Each of eight repeat breeding buffalo-cows was given an intrauterine infusion of Lugol's iodine solution at 24 hours after insemination.

Experiment IV:

Each of fifty-four repeat breeding buffalo-cows was given an intratuterine antibiotics infusion at 24 hours after insemination.

Experiment V:

The control group of sixty repeat breeding buffalo-cows were inseminated without any treatment.

Experiment VI:

Seventy-eight repeat breeding cows were treated similarly as experiment I.

Experiment VII:

Sixty-two repeat breeding cows were treated similarly as experiment II.

After treatment, the buffaloes were artificially inseminated in the proper time using semen of fertile-bulls diluted with egg-yolk-glucose-bicarbonate diluent (four parts of glucose solution 5%, one part of sodium bicarbonate 1.3% and one part of fresh hen egg yolk) and the cows were inseminated with fertile Freiseian bulls semen diluted with egg yolk citrate diluent (four parts of sodium citrate dihydrate 2.9% and one part of fresh hen egg yolk). For each one ml. of the diluent 500 I.U. penicillin and 0.5 mg. streptomycin were added.

## RESULTS

The obtained data indicate that the conception rate of repeat breeding buffaloes and cattle locally treated by intrauterine infusion with Lugol's iodine solution and/or antibiotics have an inverse relationship to the number of previous non fertile services as clear in Table 1&2.

Combined intrauterine treatment of Lugol's iodine solution two times at a week interval before the insemination which followed by antibiotics 24 hours later have better results for increasing the conception rates in repeat breeders (48.84% in buffaloes and 56.54% in cattle) than using Lugol's iodine solution alone either insemination (42.68% in buffaloes and 38.46% in cattle respectively) or after insemination (25.00% in buffaloes) or using antibiotics after insemination in buffaloes (40.74%).

It is of interest to notice that rectal and vaginal inspections revealed a lower incidence of clinical abnormal genital tracts in buffalo-cows (28.75%) than cattle (39.26%) with higher percentage of cases of endometritis (16.54%) and cervicitis (7.75%), as shown in Table 3, that can respond for trials of treatment with good results.

## DISCUSSION

Local intrauterine therapy with weak iodine solution seems to be good for its microbiocidal action and the slight uterine irritation that leads to hyperaemia and leucocytosis as well as for its rapid absorption to activate the thyroid gland (ECKMAN, HOLMERS, SETTERGERN and THORELL, 1965) resulting in higher conception rate of repeat breeding buffaloes and cattle that treated two times with a week interval before insemination. Similar results in cattle were noticed by ZAKI *et al.*, (1963) and ROBERTS (1971) but SWENSSON (1971) did not find the significant effect of Lugol's iodine solution.

Furthermore, intrauterine infusion with antibiotics at 24 hours after insemination is an effective treatment for increasing the conception rate in repeat breeding buffaloes for the bacteriocidal effect of penicillin on gram positive bacteria and streptomycin on gram negative ones. Similar results were obtained in cattle by SMITH (1957); LUKTUKU and JOSHI (1961) and DE COSTA GUERRIERO (1966) but other investigators failed to find a significant improvement in fertility rate after the same treatment that may be attributed to the condition of the genital organs of their experimental and control animals and the subclinical affections which could result in a misleading conclusions (DE BOIS, 1961; GIBBONS and KIESEL, 1963 and ROBERTS, 1971).

On the other hand, it was proved that the most effective treatment in the mentioned four trials, irrespective to the species of animal treated or the number of the previous non-fertile services, was obtained after the intrauterine infusion with combined Lugol's iodine and antibiotics solutions that increase the conception rate in repeat breeders to the highest level (48.84% in buffalo-cows and 56.45% in cattle).

Moreover, the present results indicate that the fertility rate was increased when the repeat breeders treated as soon as possible for prevention of the chronic stage and minimize the possibility of complications that was in agreement with the observations of HINZE (1959) and LUKTUKU and JOSHI (1961).

Also, the natural microbial resistance of buffaloes was indicated by their lower incidence (28.75%) of clinical abnormal genital tracts than cattle (39.29%) although better respond for the treatment in the later species

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(58.18% conception rate) than the former (30.80%) draws the attention of the great role of the genitic influence and endocrine disorders in the problem of repeat breeding in buffaloes that need further investigations.

In animals diagnosed clinically to suffer from different pathological changes in genital tracts, there are two major groups, those with cervical affections (7.75%) and the other which have had endometritis (16.54%). Although good results for treatment of endometritis cases (41.67% in buffaloes and 57.14 in cattle) with intrauterine infusion of Lugol's iodine solution only for two times with a week interval before insemination that was in accordance to the findings of ZAKI *et al.*, (1963), but the present investigation indicate that this treatment in combination with the antibiotics mixture 24 hours after insemination is the most efficient treatment in cases of endometritis as the conception rates were increased to 62.50% in buffaloes and 73.33% in cattle.

## REFERENCES

- Bearden, H.J. (1954): Fertilization and embryonic mortality rates for bulls with histories of low or high fertility in artificial breeding. Thesis, Cornell Univ., Ithaca, N.Y.
- Bhosrekar, M. (1973): Investigations into the incidence and causes of repeat breeding in dairy cattle at National Dairy Research Institute, Karnal (Haryana). *Ind. Vet. J.*, 50: 418.
- Da Costa Guerreiro, R.T. (1966): Improved fertility in dairy cow by intrauterine infusion of antibiotics after artificial insemination. *An Escola Med. Vet.*, Lisboa 2: 59.
- Dawson, F.L.M. (1953): Progesterone in functional infertility of cattle. *Vet. Rec.*, 66: 324.
- De Boiss, C.H.W. (1961): Endometritis En Verootbaaheid Bij Het Rund. Thesis, Utrecht.
- Eckman, L., Holmerg, O., Settergern, I. and Thorell, C.B. (1965): Resorption of iodine in Lugol's solution and in iodophor from the uterus of buffalo-cows. *Nord. Vet. Med.*, 17: 391.
- Gibbons, W.J. and Kiesel, G.K. (1963): Antibiotic uterine infusion to aid fertility. *Cornell Vet.* 54: 382.
- Gustafsson, I. (1971): Chromosomes of repeat-breeders heifers. *Hereditas*, 63: 68.
- Hinze, P.M. (1959): Diagnosis and treatment in dairy cow. *J. Amer. Vet. Med. Assoc.*, 134: 302.
- Luktuke, S.N. and Joshi, S.R. (1961): Intrauterine treatment of repeat breeders with antibiotics. *Ind. J. Vet. Sci.*, 31: 10.
- Mac Kay, G.W. and Thomsom, J.D. (1958): Field observation on the use of two treatments for repeat breeder cows. *Canda. J. Comp. Med.* 22: 21.
- Menge, A.C., Winter, A.J., Mc Nutt, S.H. and Casid, L.E. (1961): The effect of repeated intrauterine inoculations with bacteria on subsequent fertility in heifers. *J. Dairy Sci.*, 44: 1186.
- Mills, A.M. (1958): Infertility in cattle. *Vet. Med.*, 53: 507.
- Soberts, S.J. (1971): *Veterinary obstetrics and genital diseases*. Edwards Brothers, Inc. Ann. Arbor., Michigan.
- Smith, L.C. (1957): Treatment of beef cows to eliminate repeat breeding. *Norh. Am.* 38: 36.
- Swensson, T. (1971): Experiments with Lugol's solution portio treatment following A.I. in cattle. *Medan. Svensk. Huadjurs Skotsel*, 49: 52.
- Tanabe, T.Y. and Almquist, J.O. (1953): Some causes of infertility in dairy heifers. *J. Dairy Sci.*, 32: 237.
- Wiltbank, J.N. and Faulkner, L.C. (1970): The mangagement of beef breeding programs. *Bov. Pact.* 5: 23.
- Zaki, K., Saber, M.S., Gouad, M.S. and El-Wishy, A.B. (1963): Treatment of chronic catarrhal endometritis in Friesian cows by Lugol's iodine. *4th Arab Ann. Vet. Congr.* : 349.

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Table 1: Conception rate in repeat breeding buffaloe - cows in relation to frequency of previous unsuccessful services before uterine intusion therapy.

Times bred before treatment	Lugol's before insemination (Exp. I)			Lugol's before insemination & Antibiotics after insemination (Exp. II)			Lugol's after insemination (Exp. III)			Antibiotics after insemination (Exp. IV)			Total treated Buffaloes			Control		
	No of treated	No of pregnant	C. R. %	No of treated	No of pregnant	C. R. %	No of treated	No of pregnant	C. R. %	No of treated	No of pregnant	C. R. %	No of treated	No of pregnant	C. R. %	No of inseminated	No of pregnant	C. R. %
2-4	28	15	53.57	22	12	54.55	3	2	66.67	29	13	44.79	82	42	51.22	28	14	50.00
5-6	22	13	59.09	8	4	50.00	4	0	00.00	13	6	46.15	47	23	48.94	10	2	20.00
7-8	20	5	25.00	9	4	44.44	—	—	—	11	3	27.27	40	12	30.00	15	1	06.00
9-10	12	2	16.67	4	1	25.00	1	0	00.00	1	0	00.00	18	3	16.67	7	0	00.00
Total	82	35	42.68	43	21	48.84	8	2	25.00	54	22	40.74	167	80	42.79	60	17	28.33

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TABLE (2)

Conception rate in repeat breeding cows in relation to frequency of previous unsuccessful services before uterine therapy.

Times bred before treatment	Lugol's before insemination (Experiment VI)			Lugol's before insemination & antibiotics after insem. (Experiment VII)		
	No. of treated cows	No. of pregnant cases	C. R. % after treatment	No. of treated cows	No. of pregnant cases	C. R. % after treatment
2 - 4	50	22	44.00	43	30	69.77
5 - 6	16	6	37.00	12	4	33.33
7 - 8	8	2	25.00	5	1	20.00
9 - 10	4	0	00.00	2	0	00.00
Total	78	30	38.40	62	35	56.45







