

Treatment of Postpartum Metritis in Dairy Cattle

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Abstract

After delivery uterine function usually exposed by bacterial contamination of the uterine lumen. This study was conducted on 21 cows of Holstein-Friesian breed, aged between 4-6 years, with parity of 2-4 times suffered from postpartum metritis. The disease diagnosed according to the clinical symptoms and vaginal examination. Animals divided into 3 equal groups. 1st group treated with PGF₂α 20 mg/im., 2nd group treated with 2% lugol's Iodine Intra Uterine, while the 3rd group treated with lotagen 2% I.U. The results showed that the treatment with PGF₂α give high efficacy rate 100% (7/7) than that with lugol's Iodine 57% (4/7) and with lotagen 71% (5/7). There was a significant difference (P≤0.05) in treatment with PGF₂α as compared with other treatments, it was concluded from this study that PGF₂α give the best results in postpartum metritis treatment.

Keywords: Postpartum metritis, dairy cows, PGF₂α lugol's Iodine, lotagen.

Introduction

Metritis defined as inflammation of whole layers of the uterus. It is most commonly occurs in the postpartum period of dairy cattle within 10-14 days after parturition⁽¹⁾. Postpartum (pp.) contamination of the uterus with bacteria regarded as a causative criterion for infection^(2,3). It causes a great economical loss to the farmers especially in multiparous dairy cattle as a results of decrease of reproductive performance due to delayed uterine involution, increase calving interval, open days, number of service per conception⁽⁴⁻⁶⁾. There are many factors makes the cows more susceptible to metritis. These factors includes; Immune response, genetic factors, management factors, infections factors and nutritional and metabolic factors⁽⁵⁾ There are several method to treat postpartum metritis reported by several authors⁽⁷⁻¹⁵⁾. Postpartum metritis is commonly treated with hormones or antibiotics or antiseptics alone or in combination^(4,10,12). The hormonal treatments

include; PGF₂α, oxytocin and oestrogens^(9,12,13). The antiseptics includes lugol's Iodine solution, Bovidine and lotagen^(12,13,16). The antibiotic therapy includes; oxytetracycline, gentamycin, chloramphenicol and penicillin- streptomycin^(4,12,13,16). The study was aimed to investigate the response of treatment of postpartum metritis in dairy cattle with the PGF₂α, Lugol's Iodine and lotagen.

Materials and Method

The study was conducted on 21 cows of Holstein-Friesian breed aged between 4-6 years with parity of 2-4 in numbers, suffered from postpartum metritis, presented in the farm of coll. Vet. Med., Baghdad University. The postpartum metritis was diagnosed according to the clinical signs (mucopurulent discharge expelled through vagina) and vaginal speculum. Animals were divided into three equal groups. The 1st group (T₁) were treated with prostaglandin PGF₂α (Lutalyse, Upjohn co. USA). 20mg/im. The 2nd group (T₂) were treated with 50ml Lugol's Iodine 2% (stock solution; 8 gm pot. Iodied; 4 gm crystal Iodine in 100 ml distal water) Intra Uterine (I.U.), three times per a week (one day and another). The 3rd group (T₃) were treated with 2% Lotagen (Bioveta, a. s., Ukrainian,) I.U., three times per a week (one day and another). Animal showed normal estrus without vaginal discharge within 10-14 days after the treatment

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regarded as positive response. Statistical analysis using chi-square.

Results and Discussion

The main goal of treatment of postpartum metritis was to eliminate bacterial infection, stimulate uterine defense mechanism and increase hyperemia of the uterus. Also treated drug showed increase uterine muscle contraction to clear and evacuate uterine content^(12-14,16). The pharmacological therapy should not cause adulteration of milk and having antibacterial activity and do not cause a resistance^(12,13). Table -1 showed the effect of different method to treat postpartum metritis and the response and efficacy of each medication. There was a significant different ($P \leq 0.05$) between treated groups in the response to the treatment. $\text{PGF}_2\alpha$ which used in T_1 showed an efficacy of 100% (7/7) while the treatment with Lugol's Iodine and Lotagen showed an efficacy of 57.1% (4/7) and 71.1% (5/7) for T_2 and T_3 respectively. The higher response obtained with $\text{PGF}_2\alpha$ in treated animals might be due to the fact that $\text{PGF}_2\alpha$ cause luteolysis to the corpus luteum that leads to decrease progesterone which inhibits uterine defense mechanism (UDM), oestrogen secretion that stimulate UDM., and $\text{PGF}_2\alpha$ stimulate myometrial contraction that evacuate the uterine lumen from lochia, blood clot, cellular debris, exudate, pus and remnant of fetal membranes. Also $\text{PGF}_2\alpha$ induce phagocytosis by attraction of leukocytes^(12,13,17). Similar observation has been made by several workers^(12,14,16,18). It has been reported that the $\text{PGF}_2\alpha$ the most effective drug for metritis⁽¹⁹⁾, while others showed no improvement of the subclinical metritis^(20,21). It has been observed that administration of 25 mg/im of Dinoprost (synthetic $\text{PGF}_2\alpha$) had an effect on reduction of the size of the uterus⁽²²⁾. The low response in T_1 and T_2 which treated with lugol's Iodine and Lotagen respectively it might be due to that intrauterine infusions treated with these antiseptics leads to irritation and necrosis of endometrial wall and may cause damages to the endometrial glands. Similar results have been reported by many authors^(12,13,16,23), or it might cause inflammatory reactions that leads to fibrosis of endometrium⁽²³⁾. It has been observed that the use of lugol's Iodine intrauterine have no beneficial effect on reproductive performance in cows with reproductive problems⁽²⁴⁾. It has been explained that the use of 1% lugol's Iodine solution intrauterine in cows showed improvement against uterine infection due to its bactericidal and the slight hyperemia to the uterine mucosa that increased blood circulation and

enhance the uterine defense mechanism^(23,25). Also the chemotherapeutic with intrauterine infusion with chemicals might lead to unwanted effects to the uterus and damage of the oviduct may be occurred⁽¹⁶⁾.

Table 1. Effect of different treatments on pp. metritis in dairy cattle.

Type of treatment	No. of animals	Positive response	Efficacy %
(T_1) $\text{PGF}_2\alpha$ 20mg I.M.	7	7	100% a
(T_2) Lugol's Iodine 5%I.U.	7	4	57.1% b
(T_3) Lotagen 2% I.U.	7	5	71.4 %b
Total	21	-	76.19

Different small manuscripts mean significant difference at ($p \leq 0.05$).

Conclusion

It could be concluded from this study that $\text{PGF}_2\alpha$ injection have a beneficial effect on treatment of postpartum metritis.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq.

Conflict of Interest: The authors declare that they have no conflict of interest.

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