Therapeutic efficacy of mammary irrigation regimen in dairy cattle diagnosed with acute coliform mastitis.

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Abstract
The objective of this field study was to determine the therapeutic efficacy of mammary irrigation for the treatment of dairy cattle diagnosed with acute coliform mastitis caused by gram-negative bacteria. Additionally, the effects of different mammary irrigation regimen fluids such as ozone water and normal saline were compared. Dairy cattle clinically diagnosed with acute coliform mastitis (n = 57) were enrolled in the study, randomly assigned to 1 of 3 groups, and received the following treatments: systemic antibiotic administration (SAA group; n = 40), mammary irrigation regimen (MIR group; n = 10), and both treatments (MIX group; n = 7). Significant antipyretic effects, as assessed by rectal temperature measurement, were observed in the MIX and MIR groups. Although 2 irrigating fluids were used, namely, ozone water and normal saline, no significant difference was observed between the 2 groups. Fourteen days after the onset of the treatments, the milk yield recovery rate in MIR group tended to be higher (p = 0.06) than that in the SAA group. Additionally, after 30 days of treatment, the MIR group cows demonstrated significantly higher successful recovery rates (p<0.05) than the SAA group cows. These results indicate that mammary irrigation with normal saline is an effective treatment for acute coliform mastitis in dairy cattle.
Effect of preventive intrauterine ozone application on reproductive efficiency in Holstein cows.

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Abstract

The aim of the research was to determine the influence of preventive application of two different ozone preparations on reproductive efficiency in dairy cows with physiological puerperium. The research was conducted on 404 Holstein cows aged 2-8 years, divided into three groups. The first group consisted of cows treated using 6 intrauterine ozone pearls (RIPROMED OVULI O(3) ®, Novagen, Italy) at once. The second group consisted of cows treated with ozone foam spray (RIGER SPRAY® , Novagen, Italy) application in the body of uterus for 5 s, and the third group was the control group. Cows from the first two groups were observed and treated during early puerperium, 24-48 h after parturition. To assess the reproductive performance of Holstein cows, interval from calving to first insemination (days open to first service, DOFS), interval from calving to pregnancy (days open to pregnancy, DOP), relative pregnancy rate (%), first service conception rate (FSCR, %) and all service conception rate (ASCR, %) were measured. The estimate of hazard ratio (HR) for group B relative to group C for DOFS was 0.62 (p = 0.0002), implying that the relative rate of first service decreased in the control group by 38%. The estimate of HR for group B relative to group C for DOP was 0.65 (p = 0.0006), implying that the relative rate of pregnancy decreased in group C by 35%. Cows treated with Riger spray (group B) became pregnant earlier and had better FSCR and ASCR. It is supposed that the form of ozone preparations and the amount of active substance were decisive. A conclusion may be made that preventive ozone intrauterine application during early puerperal period, especially the foaming form of ozone preparations (spray), improved the reproductive efficacy in dairy cows.
Efficacy of ozone and other treatment modalities for retained placenta in dairy cows.

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Abstract
Retained placenta is a worldwide recognized clinical condition in puerperal cows, which can significantly affect their health and fertility. Available treatment modalities are often of questionable efficacy or associated with time constraints, practicality or monetary considerations for their wide application in a routine dairy practice. The objective of this study was to compare and assess the efficacy of different treatment options, including a novel ozone treatment, for the retained placenta. Two hundred cows diagnosed with retained placenta were divided into five treatment groups, each receiving a different treatment option. Group A (n = 40) was given a combination treatment of intrauterine ozone and parenteral cephalexin; group B (n = 40) was given intrauterine ozone; group C (n = 40) was given a combination of parenteral cephalexin and intrauterine antibiotic tablets; group D (n = 40) was given only parenteral cephalexin and group E (n = 40) was given parenteral prostaglandins in 11-day intervals. The control group (group Z, n = 200) included cows that gave birth without assistance and were not diagnosed with a retained placenta. The ozone treatment (groups A and B) was found to be the most effective modality resulting in the shortest period of days open, the smallest number of artificial inseminations until pregnancy, the smallest number of animals diagnosed with fever within 10 days post-calving, the highest percentage of animals pregnant within 200 days after calving and the smallest number of animals culled because of infertility, when compared to the other treatment groups. The intrauterine ozone flush therefore has a potential as an efficacious and cost-effective treatment option for retained placenta, with an overall positive effect on puerperal health and fertility in cows.
Efficacy of ozone as a novel treatment option for urovagina in dairy cows.

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Abstract
Urovagina is detrimental to the health and fertility of cows worldwide. Surgery, the only known treatment, is not economically pragmatic to dairy practice, and it has some medical drawbacks. The objective of this study was to determine whether reproductive problems associated with urovagina could be alleviated through more practical and less-invasive treatment options to allow successful conception and term-pregnancy. Cows diagnosed with urovagina (n = 1219) were divided into three treatment groups, each containing an equal number of cows with mild, moderate and severe urovagina. The groups received one of three treatment options: saline (group A, n = 400), streptomycin (group B, n = 400) or ozone (group C, n = 419) flush, regardless of the severity of the urovagina condition within the group. The ozone treatment was found to be the most effective treatment modality, resulting in the shortest period of days open (95, 89 and 79 days in groups A, B and C, respectively; p < 0.05), the fewest number of inseminations until pregnancy (2.38, 1.84 and 1.63 in groups A, B and C, respectively; p < 0.05) and the smallest number of culled cows (20, 23 and 12 in groups A, B and C, respectively; p < 0.05). The ozone flush coupled with intracornual insemination presents an effective treatment option for urovagina that can lead to successful conceptions and pregnancies in dairy cows.
Intrauterine ozone treatment of retained fetal membrane in Simmental cows.

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Abstract
The aim of research was to determine influence of intrauterine application of two different ozone preparations on reproductive performance in Simmental cows with retained fetal membranes (RFM). The study was performed on 143 Simmental cows aged 2-8 years and divided in three groups. Group A (n=46) consisted of cows treated with foam spray ozone applied into the body of the uterus for 5s using a sterile catheter. Group B (n=50) consisted of cows treated using six ozone pearls intrauterinely at once, as deeply and hygienically possible. Cows were observed and treated during early puerperium, 24-36h after parturition. The third group (n=47) consisted of cows without RFM (control group). To assess the reproductive performance of cows, the interval from calving to first insemination (days not pregnant to first service, DOFS), interval from calving to pregnancy (days not pregnant to pregnancy, DOP), relative pregnancy rate (%), first service conception rate (FSCR, %) and all service conception rate (ASCR, %) were measured. The estimate of hazard ratio for the Groups A and B relative to control group with DOFS were 0.423 (P=0.0006) and 0.434 (P=0.0005), and with DOP were 0.701 (P=0.003) and 0.411 (P=0.0003), respectively, implying that cows in the control group were not pregnant longer until first insemination and pregnancy. Variables that had an influence on DOFS were postpartum fever (PPF) (HR=0.458; P=0.003) and milk yield (HR=0.999; P<0.0001) and an influence on DOP were PPF (HR=0.314; P=0.001) and milk yield (HR=0.999; P<0.0001). Cows with RFM treated with intrauterine Riger spray or Ripromed ovuli O(3) have similar or enhanced reproductive performance results compared to the control group of cows demonstrating the effectiveness of therapy with intrauterine ozone products.

Intramammary application of ozone therapy to acute clinical mastitis in dairy cows.
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Abstract
The infusion of ozone into the inflamed quarter of cows with clinical mastitis was performed and the efficacy of ozone therapy was evaluated. Ozone was infused into the inflamed quarter via a teat canal using ozone gas generating equipment. Nineteen Holstein cows with acute clinical mastitis were divided into two groups: 15 cows treated with ozone therapy, and 4 cows treated with antibiotic therapy. Systemic and local clinical signs, California Mastitis Test scores, the mastitis causing pathogens, electronic conductivity of milk, and somatic cell counts in milk from ozone- and antibiotic-treated quarters, were compared between the groups. Sixty percent (9/15) of cows with acute clinical mastitis treated with ozone therapy, did not require any antibiotics for recovery. This newly developed ozone therapy method was proven to be effective, safe, and cost effective, and carries no risk of drug residues in milk.

Abstract

A study was conducted to assess the use of ozone (O3) to control pathogens or contaminants of concern to animal breeders and regulatory officials. In separate experiments, samples of fresh bovine semen and Pseudomonas aeruginosa, Escherichia coli, or Campylobacter fetus subsp. venerealis were diluted with antibiotic-free milk (10(6) sperm and 10(6) organisms/mL of diluted semen), exposed in the previous day to a constantly monitored level of 5, 10, 15, or 20 micrograms/mL of O3 for 3-5 min. After 10 min at 30 degrees C, sperm motility was assessed and the samples cooled to 5 degrees C. Two and 18 h after the beginning of cooling, aliquots of each semen sample were evaluated for motility and cultured for organisms. Reductions were observed in P. aeruginosa and E. coli colony counts of 2 logs, and in C. fetus of 5 logs, after exposure for 2 h to O3 at a concentration of 5 micrograms/mL that had a moderate effect on sperm motility (reduction of 20%). Fewer than 100 colonies, i.e., a 4 logs reduction of all bacteria, were counted after dilution with ozonized-treated milk at 20 micrograms/mL of O3. However, this concentration of O3 reduced sperm motility by 50% 10 min after dilution. The results of these experiments indicate that a concentration and exposure time to O3 can be selected to reduce P. aeruginosa, E. coli, and C. fetus in contaminated bull semen diluted with milk while having only minimal effects on sperm motility.