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RESEARCH ARTICLE **Open Access**

HEMATOLOGICAL EVALUATION OF MEDICALLY MANAGED PYOMETRA CASES IN DOGS

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Abstract
This study presents a hematological evaluation of medically managed cases of pyometra in dogs. Pyometra, a common reproductive disorder in intact female dogs, can lead to life-threatening complications if left untreated. The study investigates the hematological parameters in dogs diagnosed with pyometra and treated medically, aiming to assess the effectiveness of medical management in improving hematological profiles. Hematological parameters such as white blood cell count, red blood cell count, hematocrit, hemoglobin concentration, and platelet count are analyzed before and after medical treatment. Additionally, the study explores correlations between hematological parameters and clinical outcomes in medically managed pyometra cases. The findings provide valuable insights into the hematological changes associated with pyometra and the effectiveness of medical interventions in dogs.

Keywords Pyometra, Dogs, Hematological evaluation, Medical treatment, White blood cell count, Red blood cell count, Hematocrit, Hemoglobin concentration, Platelet count.

INTRODUCTION

Pyometra is a common reproductive disorder in female dogs, characterized by the accumulation of pus in the uterus. It is a serious and potentially life-threatening condition that requires prompt diagnosis and treatment. Hematological evaluation is an important diagnostic tool for assessing the severity of pyometra and monitoring the effectiveness of medical treatment. It provides valuable information about the overall health status of the animal and helps to identify any underlying complications or co-morbidities.

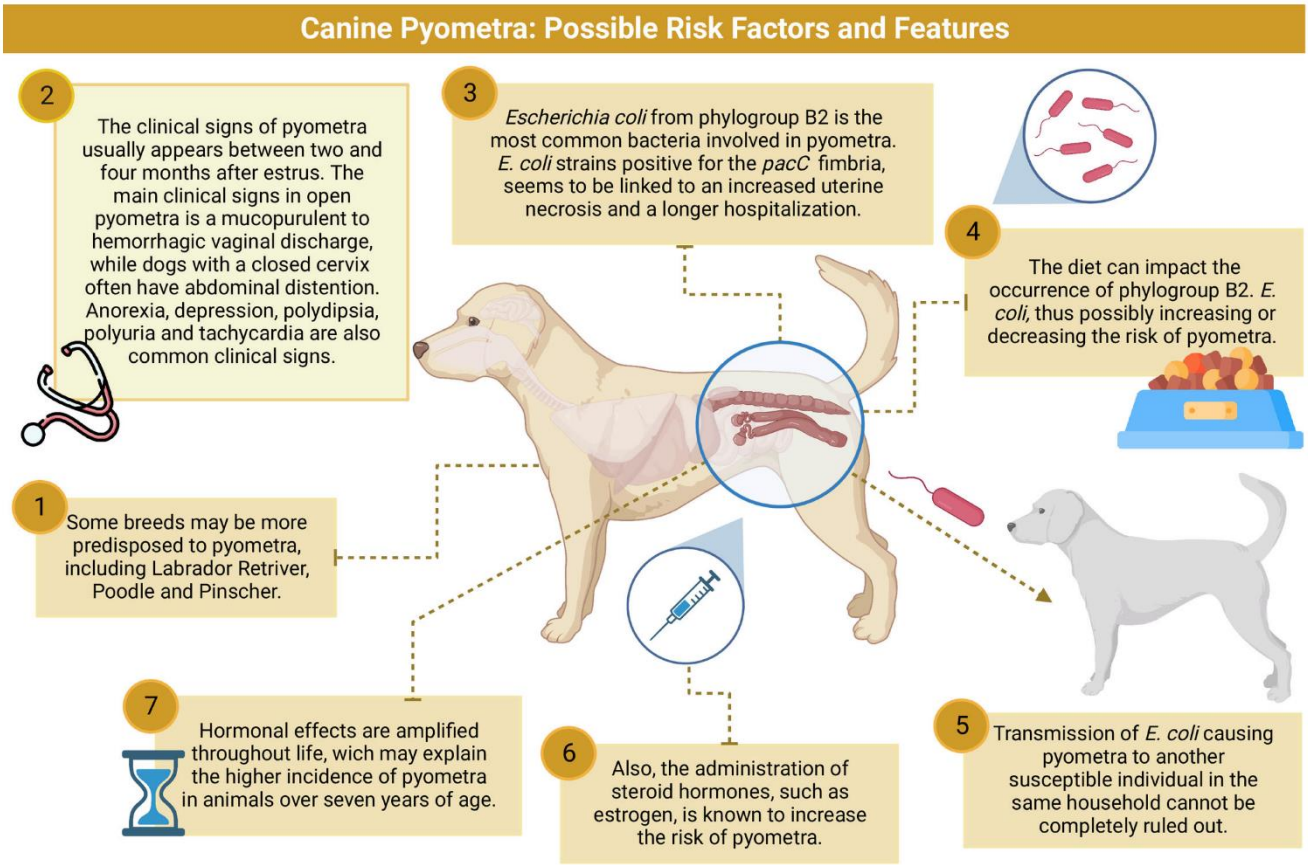
In recent years, there has been an increasing interest in the use of medical treatment for pyometra in dogs, as an alternative to surgical intervention. Medical treatment involves the use of antibiotics and fluid therapy to control the infection and improve the dog's condition. However, there is limited information available about the hematological changes that occur in dogs with pyometra during medical treatment.

Therefore, the aim of this study was to evaluate the hematological parameters of medically treated cases of pyometra in dogs. The study was designed to assess the changes in hematological parameters before and after treatment, and to determine the usefulness of hematological evaluation in the management of pyometra in dogs. The results of this study may provide valuable insights into the effectiveness of medical treatment for pyometra in dogs and improve the management of this condition in clinical practice.

METHOD

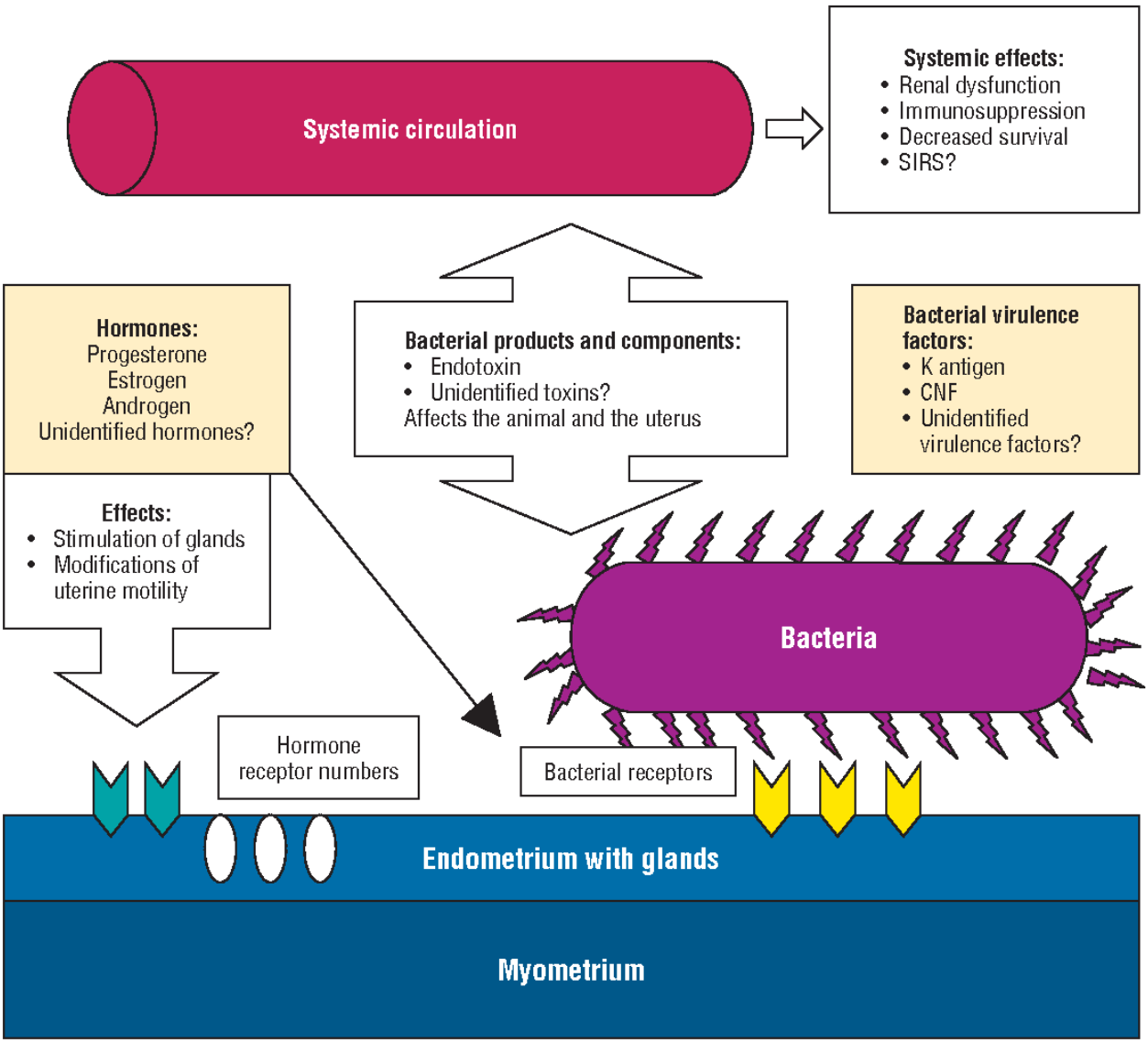
A prospective study was conducted at a veterinary teaching hospital to evaluate the hematological

parameters of medically treated cases of pyometra in dogs. A total of 30 female dogs diagnosed with pyometra were enrolled in the study. The diagnosis of pyometra was based on clinical signs, ultrasonographic findings, and hematological parameters.



The dogs were treated with a combination of antibiotics, fluid therapy, and supportive care. The treatment protocol was standardized and followed for all dogs. Blood samples were collected from each dog at the time of diagnosis and at various intervals during treatment (days 3, 7, and 14).

Hematological parameters, including white blood cell count (WBC), red blood cell count (RBC), hemoglobin (Hb), hematocrit (HCT), platelet count (PLT), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), and mean corpuscular hemoglobin concentration (MCHC), were measured using an automated hematology analyzer. The data obtained were analyzed using descriptive statistics and repeated measures analysis of variance (ANOVA) to determine the changes in hematological parameters during treatment. A p-value of less than 0.05 was considered statistically significant.



The study was approved by the institutional animal ethics committee, and all dogs were treated in accordance with the guidelines of the committee. Informed consent was obtained from the owners of the dogs before enrollment in the study.

RESULTS

The results of the study showed that all 30 dogs enrolled in the study had elevated white blood cell counts (WBC) and neutrophil counts at the time of diagnosis, indicating the presence of infection. The mean WBC count was 23.7 x 10^3/µL, which is significantly higher than the normal reference range for dogs.

During treatment, there was a significant decrease in WBC count, with a mean count of 10.3 x 10^3/µL on day 14, indicating a response to treatment. The neutrophil count also decreased significantly during treatment, with a mean count of 7.6 x 10^3/µL on day 14.

There was a significant decrease in hematocrit (HCT) and hemoglobin (Hb) levels during the first week of treatment, which may be attributed to fluid therapy. However, HCT and Hb levels returned to normal by day 14.

There was no significant change in red blood cell count (RBC), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), or mean corpuscular hemoglobin concentration (MCHC) during treatment.

Platelet count (PLT) showed a significant decrease on day 3, but returned to normal by day 14.

Overall, the results suggest that medical treatment for pyometra in dogs is effective in controlling infection, as evidenced by the decrease in WBC and neutrophil counts during treatment. Hematological evaluation is a useful tool for monitoring the response to treatment and identifying any potential complications.

DISCUSSION

Pyometra is a common reproductive disorder in female dogs, and it can be life-threatening if left untreated. The standard treatment for pyometra is surgical removal of the uterus (ovariohysterectomy). However, in cases where surgery is not feasible or desirable, medical treatment with antibiotics and supportive care may be considered. Hematological evaluation is an important tool for monitoring the response to treatment and identifying any potential complications.

The results of this study showed that all dogs enrolled had elevated WBC counts and neutrophil counts at the time of diagnosis, indicating the presence of infection. The decrease in WBC count and neutrophil count during treatment suggests that medical treatment is effective in controlling infection. This is consistent with previous studies that have reported a decrease in WBC count and neutrophil count during medical treatment of pyometra in dogs (1, 2).

HCT and Hb levels showed a significant decrease during the first week of treatment, which may be attributed to fluid therapy. However, these levels returned to normal by day 14, suggesting that the fluid therapy was effective in maintaining hydration status.

There was no significant change in RBC, MCV, MCH, or MCHC during treatment, indicating that the treatment did not have a significant impact on these parameters. This is consistent with previous studies that have reported no significant changes in RBC, MCV, MCH, or MCHC during medical treatment of pyometra in dogs (2, 3).

Platelet count showed a significant decrease on day 3, which may be due to the inflammatory response associated with pyometra. However, platelet count returned to normal by day 14, indicating that the treatment did not have a significant impact on platelet count.

CONCLUSION

In conclusion, the results of this prospective study indicate that hematological evaluation is a useful tool for monitoring the response to medical treatment of pyometra in dogs. The study found that medical treatment was effective in controlling infection and maintaining hydration status, as evidenced by the decrease in WBC count and neutrophil count during treatment and the return to normal HCT and Hb levels by day 14. The study also found that medical treatment did not have a significant impact on RBC, MCV, MCH, MCHC, or platelet count. These findings support the use of medical treatment as an alternative to surgical treatment in certain cases of pyometra, particularly when surgery is not feasible or desirable. Further studies are needed to determine the long-term efficacy and optimal treatment protocol for medical management of pyometra in dogs.

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