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A retrospective study on mild, moderate, and severe leucocytosis in dogs

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Abstract

Leucocytosis is a common hematological abnormality noticed in canines due to varied reasons. Leucocytosis is a condition in which the white cell (leukocyte) count is above the normal range in the blood. It is frequently a sign of an inflammatory response, most commonly the result of infection, but may also occur following certain parasitic infections or bone tumors as well as leukemia. In present study blood samples collected from dogs presented to clinics were tested for leucocytosis and based on the levels of total leucocyte count (TLC), they were categorised into mild, moderate, and severe. Leucocytosis was commonly noticed in animals which were dull and depressed with pyrexia.

Keywords: Leucocytosis, mild, moderate, severe and TLC

Introduction

Leucocytosis is an increased leukocyte count in a blood sample collected. Normal leukocytes count in canines is 6000 to 17000 per micro litres. It is due to changes in production, distribution or utilization of neutrophils, lymphocytes, monocytes, eosinophils, basophils, and mast cells. It is most associated with neutrophilia and monocytosis^[1]. The major conditions that cause leucocytosis are inflammation, glucocorticoid response, catecholamine response, neoplasia, and hereditary conditions. Canines with leucocytosis are likely to have bacterial, fungal infections and complicated babesiosis, immune mediated hematologic disease and necrosis^[2].

Materials and Methods

Blood sample from fifty-four dogs was collected into EDTA vacutainers. The samples were analysed for total leucocyte count (TLC) by manual method using Thomas diluting fluid and neubars haemocytometer.

Results and Discussion

Out of 54 animals, 39 (72.2%) animals showed leucocytosis. Based on the TLC, the animals were grouped into mild, moderate, and severe leucocytosis. The mild leucocytosis group had TLC-17,500-20,000/ μ L of blood. In the present study, 12 (22.2%) animals suffered with the mild leucocytosis with an average TLC of 18,933.33/ μ L of blood. In these animals, the most common type of clinical symptom was reduced food intake followed by dullness, mild tick infestation, erythematic lesions, yellowish colour vomiting, temperature around 100-102.5^oF. The mild Leucocytosis may be due to the stress and trauma of an animal. The stress may be due to the bad managemental factors like transport of an animal. The trauma of animal while playing or while transporting. It also may be due to anxiety. After surgery also animal shows the mild leucocytosis. In case of fever also mild leucocytosis is noticed^[3].

TLC of 20K to 25 K/ μ L of blood were categorized as moderate. In the present study, 13 (24.1%) animals showed moderate leucocytosis with an average TLC of 22,330.79/ μ L of blood. These animals showed reduced food intake, Respiratory distress, occasional nasal discharges, and bleeding from the nose (epistaxis) was noticed in association with lung disorders. Skin showed severe alopecia, itching, infection with petechial haemorrhage.

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Other signs were Frothy salivation, yellowish colour urination, Temperature around 101-103.2°F. TLC greater than 25 K/ μ L of blood were categorized as severe. In the present study, 13 (24.1%) animals showed severe leucocytosis with an average TLC of 29,484.61/ μ L of blood. These animals showed completely reduced food intake, animal was dull and depressed, fungal infection and reddish patchy lesions was noticed all over the body and severe alopecia was observed, watery nasal discharges with blood were noticed while sneezing in case respiratory problems, excessive salivation and seizures were also noticed with temperature around 102-105.5°F. The cutaneous mucous membrane was pale.

Moderate to severe may be due to the stress, acute infection, and inflammation. In case of allergies. Burns Immune disorders such as lupus or rheumatoid arthritis, Thyroid problems Dental caries or due to certain medicines such as cortico steroids, lithium, and beta agonists. Less commonly associated with the leukemia and lymphoma and Bone marrow disorders such as polycythemia vera and myelofibrosis [4]. In majority of the "extreme leucocytosis" was caused by bacterial or fungal infections, babesiosis, immune-mediated hematologic disease, and tissue necrosis; and that a "severe leucocytosis" was more likely to indicate serious disease in dogs. Although it may indicate illness, leucocytosis is considered a laboratory finding instead of a separate disease. This classification is like that of fever, which is also a test result instead of a disease [5]. A leukocyte counts above 25 to 30 $\times 10^9$ /L is termed a leukemoid reaction, which is the reaction of a healthy bone marrow to extreme stress, trauma, or infection. It is different from leukemia and from leukoerythroblastosis, in which either immature white blood cells (acute leukemia) or mature, yet non-functional, white blood cells (chronic leukemia) are present in peripheral blood [6].

Conclusion

It can be concluded that leucocytosis is seen in dogs commonly due to various physiological and pathological conditions. It is very important to assess the cause of leucocytosis so as to treat the condition effectively.

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