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Brief Communication

HEMOLYTIC ACTIVITY IN SERUM FROM LEUKOTIC DOGS

Bäckgren (1965) has stated that the anemia, which often occurs in dogs suffering from lymphatic leukosis, is caused by reduced erythropoiesis and raised hemolytic activity in the serum. In this report an account is given of the first investigations on this hemolytic activity.

Hitherto, serum from 39 dogs, diagnosed as suffering from lymphatic leukosis, has been investigated. In 31 of these dogs hemosiderosis in the spleen and bone marrow was microscopically examined and classified as normal — mild (I) or moderate — heavy (II). The degree of hemosiderosis was compared with the hemolytic activity in serum.

Heparinized blood samples were taken from 10 clinically healthy dogs of different breeds and ages, and were washed 5 times in physiological saline and then made into a suspension of about 20 %. These suspensions were pooled. The leukotic dog sera were inactivated for 1 hr. at 56°C. Subsequently, 0.2 ml of the pooled suspension was mixed with 0.2 ml of the inactivated serum from the leukotic dogs, and then incubated for 1 hr. in a water-bath at 38°C. During incubation the samples were twice again suspended. After this 3 ml of physiological saline were added to the incubation product, and the mixture centrifuged at 800 G for 4 min. The cell-free supernatant was carefully removed, and the hemoglobin content determined in a Beckman B photometer at 540 mμ.

The spontaneous fragility of the erythrocyte pool was determined, under the given laboratory conditions, by the addition of 0.2 ml of physiological saline instead of leukotic dog serum. The estimated hemoglobin values indicated the autohemolysis of the cell pool. In the same way, on the addition of 0.2 ml of the inactivated serum from the control dogs, the fragility of the cell pool was determined, which indicated the isoserological hemolysis.

The hemoglobin concentration of the cell pool was determined, in accordance with the above-mentioned laboratory procedure, by adding 0.01 ml of a saturated saponin solution. This indicated the total hemolysis.

The serum from the leukotic dogs had a hemolytic activity of 57.2 ± 7.0 % ($\bar{x}$ and 95 % confidence limit). The corresponding values for the control material were 17.7 ± 2.8 % (Fig. 1). Hemolysis in the dogs with normal — mild hemosiderosis (I) was 45.0 ± 8.3 %, and in dogs with moderate — heavy hemosiderosis (II) 67.2 ± 10.3 % (Fig. 2).

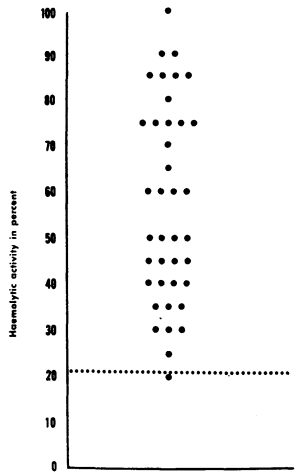

Figure 1. Hemolytic activity in individual leukotic dogs (n = 39). Dotted line: $\bar{x}$ + 95 % confidence limit of the control dogs.

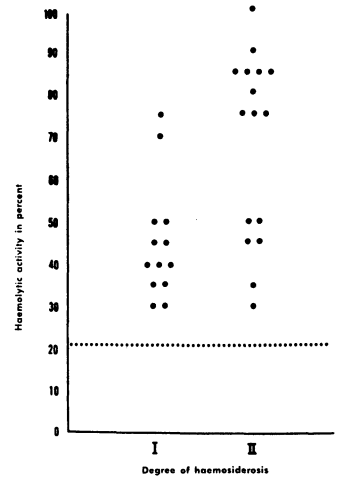

Figure 2. Hemolytic activity in leukotic dogs (n = 31) in relation to the degree of hemosiderosis.

The hemolytic activity, determined *in vitro,* in the serum of leukotic dogs, and its correlation with the degree of hemosiderosis, may be a strong contributory cause of the anemia discussed by *Bloom & Meyer* (1945), *Irfan* (1961) and other investigators.

Investigations into the factor (HF), accountable for the hemolysis are in progress.

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