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SERUM LEVELS OF SIALIC ACID
IN DOGS, CATS, COWS AND HORSES
BY THE METHOD OF ENZYMIC ASSAY

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The purpose of this study was to estimate the usefulness of serum sialic acid (SA) assays as a diagnostic indicator for veterinary medicine. The results obtained were as follows.

1. The serum level of SA in healthy adult animals measured by the enzymic assay was 40.1 ± 5.5 mg/dl (mean \pm SD) in 30 dogs (normal range = $29.1 - 51.1$ mg/dl (mean $- 2$ SD $-$ mean $+ 2$ SD)). It was 58.6 ± 4.8 mg/dl in 16 cats (normal range = $49.0 - 68.2$ mg/dl), 43.7 ± 7.0 mg/dl in 21 cows (normal range = $29.7 - 57.7$ mg/dl) and 14.2 ± 2.7 mg/dl in 77 horses (normal range = $8.8 - 19.6$ mg/dl).
2. In Hereford cows, SA levels were significantly higher in suckling calves than in adult cattle. In thoroughbred horses, there were lower values in race horses (4 or 5 years old) than in young animals (from newborn to 34 months old) and breeding stock (more than 6 years old). In thoroughbred sires, values were higher in the summer than in the winter, and in the middle range in the spring and the autumn. In Holstein cows, the serum SA level was lower in the dry stage than in the lactating stage. In thoroughbred horses, it was significantly lower in nonpregnant mares than in pregnant mares and dams immediately after calving.
3. Changes in serum SA levels in inflammation induced experimentally by turpentine injection in 3 mongrel dogs were studied. A rapid and marked increase was observed at 48 hrs after injection. It reached the maximal level at 96 to 216 hrs after injection, and decreased gradually, but values still remained high at 264 hrs, the end of the experimental period.
4. Serum SA levels were above the normal range in animals affected with various diseases, particularly in those with severe inflammatory disease or disease with an unfavorable prognosis. In horses, however, in some cases it was within the normal range. In cows with fatty liver, it was within the normal range. There was a good correlation between SA and α_2 -globulin levels.
5. The serum SA level showed different patterns in relation to therapeutic values. In animals which responded to treatment and recovered, it decreased markedly with the progress in therapy. In animals which remained in good condition, it was maintained at consistent values. If the condition took a turn for the worse, it started to rise until death. In some cases, it decreased suddenly before death.