SUMMARY

The following pathological changes have been observed in rats given sulfaguanidine or sulfasuxidine in purified diets.

1. A granulocytopenia, leukopenia, hypocellularity of bone marrow and, occasionally, an anemia.

2. Hyalinization, necrosis and calcification of voluntary muscle.

3. Hyaline sclerosis and calcification of blood vessels.

4. A dermatitis which can be prevented or successfully treated with crystalline biotin.

We have also observed necrosis of heart muscle, hemorrhage into various organs and subcutaneous tissues, and liver damage.

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ATYPICAL RESPONSE OF THE RABBIT TO DESOXYCORTICOSTERONE ACETATE

WE have found[1,2] that administration of desoxycorticosterone acetate, progesterone, alpha-estradiol benzoate, testosterone proprionate and diethylstilbestrol to dogs results in a marked increase in the rate of entrance of Na and Cl into 5.5 per cent. dextrose solution introduced into the peritoneal cavity. No such effect was noted in rabbits following administration of desoxycorticosterone acetate, progesterone and diethylstilbestrol.[2] Certain additional findings are of interest in this connection.

Injection of 2.5 mg of DOCA daily for three days in two rabbits had no significant influence upon the urinary excretion of water or Cl during the experimental period. Two rabbits (2.0 and 1.8 kg) received 2.5 mg of DOCA daily for three months, the animals being weighed and the blood-pressure determined[3] bi-weekly. There was no significant change in weight for six weeks in one animal and eight weeks in the other, with a subsequent increase to a maximum of 47 and 40 per cent., respectively, over the pre-treatment levels at the end of the experimental period. There was no significant alteration in blood-pressure and no edema or other evidence of toxic effect of DOCA, as has been reported in the dog.[4] Two pregnant rabbits treated in the same manner showed no significant gain in weight, no edema and no increase in blood-pressure. Both aborted at about four weeks' gestation, one developed marked weakness of the hind limbs after five weeks of treatment and both died after six weeks. The weakness of the hind limbs may have been due to decrease in the serum K concentration; the serum Cl concentration was unaltered in the non-pregnant animals, but no chemical studies were performed in the pregnant rabbits. Dexter and Weiss[5] have reported a similar absence of effect of large doses of DOCA in pregnant and non-pregnant rabbits in experiments of shorter duration.

These observations suggest the existence of a marked species difference in the influence of DOCA and perhaps also progesterone, estradiol, testosterone and other steroid hormones upon water and electrolyte metabolism. This has an important bearing, perhaps, on the use of the rabbit in studies of the relation of these hormones to hypertensive "toxemia" of pregnancy.

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[1] A. Cantarow and A. E. Rakoff, *Endocrinology*, 27: 652, 1940.

[2] A. E. Rakoff and A. Cantarow, *Endocrinology*, 30: 816, 1942.

[3] R. I. Grant and P. Rothschild, *Jour. Physiol.*, 81: 265, 1934.

[4] D. Kuhlmann, C. Ragan, J. W. Ferrebee, D. W. Atchley and R. F. Loeb, SCIENCE, 90: 496, 1939.

UNIFORMITIES IN THE CONTENT OF B VITAMINS IN MALIGNANT NEOPLASMS

FOR two years[1] this laboratory has been interested in the possibility that cancer tissues might show peculiarities in vitamin distribution, characteristic of this type of growth. We have now completed an extensive series of determinations of eight B vitamins not only on various types of human, rat and mouse cancer material but also upon normal tissues from these same animals. This material is now in press.[2]

By analysis of the values obtained, highly interesting and important uniformities are observed which we wish to set forth briefly here. We shall use the term "vitamin uniformity" to designate the similarity of vitamin content in a group of tissues. For example, if in a number of samples of muscle tissue pantothenic acid had a mean level of 5 γ per gram with a standard deviation of 1, then $1/5 \times 100$, or 20, would equal the average deviation from the mean in per cent., or, to express the relationship in the opposite manner, there would be an average degree of uniformity in pantothenic acid content of 80 per cent. The average of the "vitamin uniformities" in a series of tissues calculated for the individual vitamins is designated the "Total B Vitamin Uniformity."

[5] L. Dexter and S. Weiss, "Preeclamptic and Eclamptic Toxemia of Pregnancy." Boston: Little, Brown and Company, 1941.

[1] R. J. Williams, SCIENCE, 92: 579, 1940.

[2] University of Texas Publication 4237, 1942.