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Prevention and Reversal of Coronary Lipid Deposition in Rats Given Antikidney Serum Desoxycorticosterone and Sodium Chloride

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period of the acute experiment in all the animals. No consistent alteration in the normally occurring proteinuria was discovered. Two aged males with spontaneous renal disease showed a similar increase in urea excretion on the same regimen. (Supported by a grant from the Durham United Fund.)

1569. PREVENTION AND REVERSAL OF CORONARY LIPID DEPOSITION IN RATS GIVEN ANTIKIDNEY SERUM, DESOXYCORTICOSTERONE AND SODIUM CHLORIDE. Richard Moy,* Marjorie A. Schroeder,* Audrey A. Moskowitz* and Robert W. Wissler. Dept. of Pathology, Univ. of Chicago, Chicago, Ill.

Acute lipid-containing lesions of the coronary arteries having many of the features of early atherosclerosis can be produced by antikidney serum (AKS) injection in the rat when it is followed by daily administration of a high fat diet, 1% NaCl in the drinking water and DCA injections. Previous work has shown that variation of any of these components may affect the incidence of lesions. In the present study preliminary experiments have shown that either a low fat-low protein ration or estrogen injections beginning prior to administration of AKS, DCA and NaCl will significantly decrease the incidence and severity of the coronary artery lesions. Further study has shown that the extent and severity of these lesions can also be reversed by instituting either a low fat-low protein ration or estrogen therapy after lesions have developed in the majority of the rats. A combination of these treatments has some additive effect. The blood pressure, serum lipids and urinary protein values have been studied in relation to therapy or prevention of lesions. In general when the lesions were reduced there was a marked depression of serum lipids and urinary proteins and a lesser reduction of blood pressure. A study of the tissues of these animals has revealed that estrogen therapy was most effective in decreasing fat-deposition in larger coronary arteries while the low protein-low fat ration particularly decreased lipid accumulation in the smaller coronary arteries. The mechanism of action of antikidney serum, diet etc. will be discussed in the light of histochemical study of the kidneys and arteries.

1570. ARTERIOSCLEROSIS IN PYRIDOXINE-DEFICIENT MONKEYS AND DOGS. Charles W. Mushett and Gladys A. Emerson.* Merck Inst. for Therapeutic Research, Rahway, N. J.

In "recovery" type studies, treatment of monkeys with pyridoxine, 2 or 10 mg/animal daily, for 7-14 months after a pyridoxine-depletion period of 8-9 months, failed to bring about complete regression of arteriosclerotic lesions. One monkey, sacrificed after only 11 days of treatment with 10 mg B_6 daily, showed a tendency toward normalization of enlarged organ size, characteristic of B_6 deficiency. Several monkeys fed a stock ration and injected with the antagonist, desoxypyridoxine, have not shown gross arteriosclerosis, such as was noted in animals on a B_6-deficient diet, but an occasional microscopic lesion has been seen. The desoxypyridoxine-treated monekys developed marked scaling dermatitis relatively early and also exhibited convulsive seizures and ataxia. The dermatitis responded to local treatment with pyridoxine ointment. Grossly observable arteriosclerosis was reported earlier in the ascending aorta and/or lower abdominal aorta of 2 dogs fed a B_6-deficient diet for 5.5 months followed by an average daily intake of 10γ B_6/kg body weight for 10 months. In the present group, arteriosclerotic plaques, principally in the iliac and femoral arteries, were observed in 7 of 9 dogs on test for 35 months. The average daily intake of pyridoxine per kg body weight and incidence of arteriosclerosis for the 3 subgroups follow: 1) 10γ/kg, 4 of 4 positive; 2) 100γ/kg, 2 of 3 positive; 3) 290γ/kg, 1 of 2 positive. Cardiac hypertrophy occurred in 2 animals receiving the lowest dose level of pyridoxine.

1571. INJECTION SITE FIBROSARCOMA PRODUCTION IN RATS BY FOOD COLORS. Arthur A. Nelson and Bernard Davidow,* Div. of Pharmacology, Food and Drug Admin., Washington, D. C.

In Fed. Proc. (12:397, 1953) Nelson and Hagan reported the production of numerous subcutaneous injection site fibrosarcomas with 3 FD&C colors, and few or none in nearly completed studies with 4, in rats injected with 20-30 mg/wk for 2 yr. The final tumor figures for the latter 4, in the order given there, are 4, 2, 2, and 0 per 18-rat group. Since then, 6 additional FD&C colors have been studied. Using 20 mg/wk in 2% aqueous solution, injection site fibrosarcomas of 2-8 cm diameter were produced among groups of 18 young Osborne-Mendel rats in 14 with FD&C Violet No. 1, and 6 with FD&C Orange No. 1. With the oil-soluble colors 10 mg/wk was so toxic that injections were stopped after 10 wk. With 1-1/2 mg/wk in 1% glycerin suspension, tumor production with FD&C Yellow No. 3, FD&C Yellow No. 4, FD&C Red No. 32, and (ended after 13 months) FD&C Orange No. 2 was respectively 1, 5 (?6), 0, and 0. The latter 2 colors caused hydrothorax and right-sided heart hypertrophy. There was a slight female preponderance in injection site tumors (totals 50 vs. 39). No effect on tumor production away from injection sites could be seen. Saline- and glycerin-injected controls had no injection site tumors. An additional group was injected intraperitoneally thrice weekly with 20 mg FD&C Green No. 2 in 2% aqueous solution for 2 years; no tumors were produced.

1572. EFFECTS OF MOUSE TISSUE EXTRACTS ON MITOSIS OF ASCITES TUMOR CELLS. Edwin Nishimura, Thomas Harwood,* Joseph Baum* and Paul Putong.* Dept. of Pathology, Northwestern Univ. Med. School, Chicago, Ill.

Earlier observations suggest that certain polysaccharides interfere with cell division by preventing mitotic gelatin. Heparin-like poly-saccharides presumably prevent gelatin of protoplasm in dividing cells by reducing the viscosity of the protoplasmic colloid and interfere with spindle formation. Aqueous extracts of subcutaneously implanted Ehrlich tumors (solid) in Strong A mice, tentatively indentified as containing polysaccharides, were found to lower the protoplasmic viscosity of Ehrlich ascites tumor cells by the centrifugation technique. Single injections of Strong A extracts were given intraperitoneally in Strong A mice bearing Ehrlich ascites tumor and samples were aspirated at appropriate intervals up to 24 hr or longer to determine viscosity values and mitotic indexes. Following a rapid fall in protoplasmic viscosity, a rise in the mitotic index was noted in the ascitic tumor. With gradual recovery to the normally rigid protoplasmic state of tumor cells, several hours after the injection of the extracts, the mitotic index returned to its initial level. A comparison between the ascending curve of the rising mitotic index and the curve of the theoretical tumor cell multiplication rate showed the two to correspond closely. The rise in the mitotic index was interpreted as resulting from an accumulation of cells which were arrested during mitosis. Comparison of weights of subcutaneously implanted tumors in Strong A and CAF_1 hybrid mice

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