

been compared and now are sure that Eagles' amino acid solution is much better than Y.L.E. solution. The grain counts by Eagles' solution is several times as many as that by

Y.L.E. solution, as for as tritiated thymidine is concerned. So, chemical application is now possible with short exposure time and less amount of isotope.

## Cholesterol Metabolism in the Alloxan Diabetic Rabbits

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Hypercholesterolemia is often associated with diabetes, especially with acute alloxan diabetic animals.

In an attempt to explain these findings, an investigation of the rate of cholesterol turnover in alloxan diabetic rabbits were made.

Control and acute alloxan diabetic rabbits were treated by injection with cholesterol-4- $^{14}\text{C}$  and acetate-1- $^{14}\text{C}$  intravenously and the serum obtained at various time intervals was extracted with chloroform-methanol mixture.

The total lipid so obtained was separated into cholesterol ester and free cholesterol by silica gel column chromatography.

About 50% of injected labeled cholesterol disappeared during 48 hours in the controls whereas only 20%, in the diabetic rabbits. The maximum cholesterol ester specific radioactivity occurred after 16 hours in the controls and after 35 hours in the alloxan diabetic animals.

The peak specific activity for serum free cholesterol after injection of acetate-1- $^{14}\text{C}$  occurred after 6 hours in the controls and after 9 hours in the diabetic rabbit.

Cholesterol ester specific radioactivity increased gradually in the both groups during 24 hours, but no gross differences were observed in serum cholesterol specific radioactivity between the control and the alloxan

diabetic rabbits.

Radioactivity of liver and gut cholesterol of control rabbits 24 hours after injection of acetate-1- $^{14}\text{C}$  was significantly greater than that of the alloxan diabetic ones, whereas kidney and aorta of the both groups had similar cholesterol radioactivity. From these findings, defective cholesterol synthesis by the alloxan diabetic rabbits was found to be present in liver and gut and delayed appearance of radioactive cholesterol ester in the serum of the diabetic animals is attributed to the disturbance of the incorporation of cholesterol into liver.

A few enzyme activities associated with cholesterol metabolism were studied with tritiated 3 $\alpha$ -hydroxy- $\Delta^7$ -cholesterol and 3 $\beta$ -hydroxy- $\Delta^5$ -cholesterol as substrates.

The enzyme activity of  $\Delta^7$ -steroid reductase which converts 7-dehydrocholesterol into cholesterol is lesser in the alloxan diabetic rabbits than in the controls and the activity was not enhanced with the addition of nicotinamide adenine dinucleotide phosphate plus glucose-6-phosphate. While, the activity of 7 $\alpha$ -hydroxylase, which plays a role in conversion of cholesterol into 7 $\alpha$ -hydroxycholesterol had not much difference in both groups, but in the diabetic animals, its activity was not restored sufficiently with the addition of nicotinamide adenine dinucleotide phosphate plus glucose-6-phosphate.