TABLE I. Autopsy Data* on Rats Fed Various Levels of Dietary Protein.

Group	Diet components (%) Protein	CCL†	Sucrose	Wt gain (g)	Serum chol. (mg %)	Liver wt (g)	Liver lipid distribution % NS‡	% chol.
Exp. 1								
A	10 C§	—	53.0	– 4	228 (121- 299)	11.8	19.4	9.3
B	10 C	0.5	52.5	–14	1132 (885-1500)	10.5	12.3	5.0
C	20 C	0.5	42.5	96	658 (423- 945)	16.7	13.3	5.7
D	40 C	0.5	22.5	113	460 (274- 983)	16.4	16.9	5.3
E	60 C	0.5	2.5	72	483 (351- 728)	15.2	10.8	5.0
Exp. 2								
K	10 D‖	2	55	–10	637 (341- 978)	12.6	—	—
L	40 D	2	25	174	382 (198- 520)	16.4	—	—
M	60 D	2	5	164	188 (141- 258)	17.2	—	—

* Averages for groups of 6 rats each. † CCL—Choline chloride. ‡ NS—Nonsaponifiable. § Casein. ‖ D—Drackett protein.

of the diets of groups of rats on a normally hypercholesterolemic regimen (cholesterol plus cholic acid) caused a progressive drop in serum cholesterol values. This observation held true when either casein or Drackett protein was used. All diets except one contained added choline chloride. Animals on the choline-free diet had lower serum cholesterol levels and higher liver cholesterol levels than a comparable choline-fed group.

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Serum Glycoproteins in Thyroidectomized Rats. (22597)

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Robbins, Petermann and Rall(1) found that the thyroxine-binding protein of human serum has a solubility, sedimentation constant and electrophoretic mobility in alkaline solution resembling an α-2-glycoprotein. Gersh (2) pointed out that thyroid cells present submicroscopic particles containing glycoproteins and that thyroid colloid has at least 2 proteins with carbohydrate-reacting groups. One of these proteins seems to be identical with thyroglobulin.

However, we were unable to find any reference in the literature dealing with serum glycoproteins in thyroidectomized animals. This paper reports the results of our experiments on the effect of thyroidectomy in serum glycoproteins.

Materials and methods. Male Wistar rats weighing between 50 and 80 g were thyroidectomized under ethyl urethane anesthesia. These animals and a group of normal Wistar rats of the same age, sex and weight were given the normal laboratory diet. After 45 days all animals were bled by heart puncture under ether anesthesia. Blood was left to clot and serum separated. Serum glycoproteins

TABLE I. Glycoproteins and Total Proteins in Sera of Normal and Thyroidectomized Rats.*

Group	No. of rats	Glycoproteins, mg hexose/100 ml	Total proteins, g/100 ml	G/P, mg glycoprotein/g protein
		Mean ± stand. dev.†		
Normal	12	125 ± 9	7.71 ± .53	16 ± 1.35
Thyroidectomized	8	98 ± 12	6.41 ± .76	15 ± 2.00

* Mean body wt 161 g. † Stand. dev. $= \sqrt{\frac{\Sigma (x - \bar{x})^2}{n - 1}}$.

were determined as total protein-bound hexose using a galactose-mannose standard according to Winzler's technic(3). The determination of total serum proteins was carried out by the biuret method of Weichselbaum (4).

Results. Average values for serum glycoproteins and total proteins obtained with normal and thyroidectomized rats, followed by their standard deviations are given in Table I. Glycoproteins and total proteins were expressed as mg of galactose-mannose and g of protein per 100 ml of serum, respectively. The G/P ratio was expressed in mg of glycoprotein per g of total protein.

The averages obtained were all highly significant ($P<0.001$) according to Student's t test(5). Glycoprotein levels in thyroidectomized rats were markedly lower than those obtained for normal ones. The difference was highly significant ($t = 5.5$, $P<0.001$). Total proteins were also considerably lowered in thyroidectomized animals, and the difference between the averages for operated and normal rats was also statistically significant ($t = 4.5$, $P<0.001$). On the other hand, G/P ratios of normal and thyroidectomized rats were practically the same and the difference between the averages of both groups was not statistically significant ($t = 1.335$, $P<0.2$).

Discussion. Our studies in thyroidectomized rats are in accordance with those of Podhradszky(6,7) who reported a decrease on total serum proteins in thyroidectomized dogs. In view of our results the observed decrease in serum glycoproteins after thyroidectomy was probably a consequence of hypoproteinemia, as it was shown by similar values of G/P ratio observed in both normal and operated rats.

Summary. Glycoproteins and total proteins were determined in sera of normal and thyroidectomized male Wistar rats. Statistically significant decreases of serum glycoproteins and total proteins were observed in the operated animals. Our results seemed to show that the fall in serum glycoproteins of thyroidectomized rats is related to the hypoproteinemia observed in this experimental condition.

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