TABLE 1 (continued)

Item and dosage form	Sugar content (gm./5 ml.)	Sugar form*	Manufacturer
Tussagesic, suspension	3.581	S	Dorsey
Tussar S.F., syrup	none		Armour
Tussar-2, syrup	3.25 0.85	S LG	Armour
Tuss Ornade, liquid	none		Smith, Kline & French
2/G Cough Expectorant	1.75 0.6	S G	Dow
2G/DM, expectorant	2.4 0.6	S G	Dow
Tylenol, drops	none		McNiel
Uticillin VK 125, solution	2.09	S	Upjohn
Uticillin VK 250, solution	1.922	S	Upjohn
Valpin, elixir	none		Endo
Valpin-PB, elixir	none		Endo
V-Cillin K 125, solution	3.0	S	Lilly
V-Cillin K 250, solution	3.0	S	Lilly
Veetids 125, solution	2.9	S	Squibb
Veetids 250, solution	2.7	S	Squibb
Verequad, suspension	2.52	S	Knoll
Versapen, suspension	2.0	S	Bristol
Vesprin, suspension	none		Squibb
Vibramycin, suspension	1.581	S	Pfizer
Vi-Daylin, drops	none		Ross
Vi-Daylin, liquid	4.85	G/S	Ross
Vi-Daylin ADC, drops	none		Ross
Vi-Daylin/F, drops	none		Ross
Vi-Daylin/F ADC, drops	none		Ross
Vi-Daylin M, liquid	4.45	G/S	Ross
Vi-Daylin Plus Iron, drops	none		Ross
Vi-Daylin Plus Iron ADC, drops	none		Ross
Vi Penta, drops	none		Roche
Vi Penta with Fluoride, drops	none		Roche
Vistaril, suspension	none		Pfizer
X-Prep, liquid	3.3	S	Gray
Zentron, liquid	0.25 4.7	S G	Lilly
Zymadrops, drops	none		Upjohn
Zymalixir, elixir	2.996 0.749	S LG	Upjohn
Zymasyrup, syrup	2.996	S	Upjohn
Zymatinic, drops	2.994	S	Upjohn

*dS = sorbitol, G = glucose, G/S = glucose and sucrose, S = sucrose, S/dS = sucrose and sorbitol solution, 70 per cent U.S.P., G/F = glucose and fructose, in an equimolar mixture, F = fructose, H = honey (honey consists of 62 to 83 per cent invert sugar, in an equimolar mixture of glucose and fructose, with small quantities of sucrose, 0 to 8 per cent, and dextrin, .26 to 7 per cent), LG = liquid glucose (30 to 40 per cent glucose).

ABSTRACTS

Archer, J. A., Gorden, P., Gavin, J. R., III, Lesniak, M. A., and Roth, J. (Diabetes Section, Clin. Endocrinol. Branch, Natl. Inst. Arthritis, Metabolism and Dig. Dis., N.I.H., Bethesda, Md.): INSULIN RECEPTORS IN HUMAN CIRCULATING LYMPHOCYTES: APPLICATION TO THE STUDY OF INSULIN RESISTANCE IN MAN. J. Clin. Endocrinol. and Metab. *36*:627-33, April 1973.

I-125 insulin was found to bind to circulating lymphocytes with displacement by unlabeled insulin. The authors compared the binding displacement curves of I-125 insulin in the circulating lymphocytes in normal subjects with those in insulin-resistant obese and acromegalic patients and insulin-sensitive hypopituitary subjects. The initial I-125 insulin binding for normal subjects had a mean value of 2.9 ng./1 ml. (range 1.9 to 3.4) per 70 x 10^6 cells, which is not statis-

tically different from values in the other groups. In the normals the 50 per cent inhibition of I-125 insulin bound had a mean value of 8.4 ng./1 ml. This value was significantly different from that found in obese subjects but not from that noted in acromegalic or hypopituitary subjects. In obesity there was a decrease in insulin binding. In theory, this could be due to a decrease in either total number of receptors or a decrease in the affinity of the receptor to insulin. If the circulating lymphocyte mirrors the changes seen in the major metabolic sites of insulin action, the data reported by the authors may indicate that changes in the insulin receptor are in part responsible for insulin resistance with obesity.

T.J.M.

Askew, E. Wayne; Huston, Richard L.; and Dohm, G. Lynis (U.S. Army Med. Res. and Nutr. Lab., Fitzsimons Gen. Hosp., Denver, Colo.): EFFECT OF PHYSICAL TRAINING ON ESTERIFICATION OF GLYCEROL-3-PHOSPHATE BY HOMOGENATES OF LIVER, SKELETAL MUSCLE, HEART, AND ADIPOSE TISSUE OF RATS. Metabolism *22*:473-80, March 1973.

Rats trained to exercise by treadmill running were found to increase glycerol-3-phosphate esterification in adipose tissue, skeletal muscle and heart, but not in liver, when compared with sedentary controls. The synthetic pathways for lipid metabolism in muscle are increased by training, providing evidence that endogenous glycerides may provide a source for fatty acids during exercise. The influence of glyceride synthesis in adipose tissue indicates that the increased ability to esterify fatty acids during periods of inactivity may represent a biological adaptation for replenishing an energy reserve for future needs. C.R.S.

Balasse, E. O., and Ooms, H. A. (Metabolic Unit, St. Pieter's Hospital and Lab. of Exp. Med. and of Clin. Chem., Univ. of Brussels, Brussels, Belgium): ROLE OF PLASMA FREE FATTY ACIDS IN THE CONTROL OF INSULIN SECRETION IN MAN. Diabetologia *9*:145-51, April 1973.

Verbatim summary. The aim of the present work was to study the effects of experimental changes in plasma free fatty acid (FFA) levels on basal insulin (IRI) concentration and on β cell response to IV glucose, tolbutamide or glucagon in man. Each of the fifty-three subjects tested was studied on two separate occasions: in the basal state and after an experimental decrease or increase in plasma FFA levels induced, respectively, by administration of nicotinic acid or the combination of a fat meal and heparin. The lowering of plasma FFA resulted in a small but significant fall in basal insulin concentration and in a 30 per cent decrease in IRI response, whatever the insulinotropic agent used. On the other hand, experimental elevation of plasma FFA enhanced pancreatic response to glucose (+ 178 per cent) and tolbutamide (+ 58 per cent), but did not alter significantly the IRI response to glucagon. Both the increase and the decrease in FFA concentration resulted in a reduction in the rate of glucose assimilation. These results provide arguments for a role of plasma FFA in the control of insulin secretion and of insulin sensitivity in man.

Brisson, Guy R., and Malaisse, Willy J. (Lab. of Experimental Med., Brussels Univ., Brussels, Belgium): THE STIMULUS-SECRETION COUPLING OF GLUCOSE-INDUCED INSULIN RELEASE. XI. EFFECTS OF THEOPHYLLINE AND EPINEPHRINE ON 45-CA EFFLUX FROM PERIFUSED ISLETS. Metabolism *22*: 455-65, March 1973.

Isolated islets obtained from rats were found to respond to theophylline by increasing the efflux of labeled calcium from the cells in the presence or absence of extracellular calcium in the incubating medium. Glucose reduced the effect of theophylline on 45-Ca efflux, suggesting that the cationic outflow associated with theophylline-induced calcium redistribution is inhibited by glucose. Epinephrine caused an outward flow of 45-Ca as a transient phenomenon in both the presence and absence of glucose. Since epinephrine was found to antagonize the effect of theophylline on calcium efflux, it seemed likely that epinephrine may deplete calcium by an intracellular redistribution of the cation. The hypothesis is presented that the inhibitory effect of epinephrine on insulin release is related to a glucose-independent facilitation of both outward transport and organelle uptake of calcium. C.R.S.

Broder, L. E.; and Carter, S. K. (Cancer Therapy Evaluation Branch, Division of Cancer Treatment, National Cancer Institute, NIH, Bethesda, Maryland): PANCREATIC ISLET CELL CARCINOMA. I. CLINICAL FEATURES OF 52 PATIENTS. Ann. Intern. Med. *79*:101-107, July 1973.

Verbatim summary. The clinical features of fifty-two patients with metastatic pancreatic islet cell carcinoma treated with streptozotocin (NSC-85998) were analyzed. Seventy-nine per cent of the patients had functioning tumors with the majority secreting insulin; 21 per cent of the patients had nonfunctioning tumors. The tumors were found primarily in the tail of the pancreas and were noted, with equal frequency in men and women, at a median age of fifty-two years. Metastases were mainly to the liver and by local extension; distant metastases were rarely noted. The most frequently reported presenting symptom was hypoglycemia, occurring in 90 per cent of the functioning-tumor patients. Gastrointestinal ulceration and diarrhea were less frequently observed. An over-all median survival of 908 days, from diagnosis to last follow-up, was noted. There was no significant difference in survival rates between the sexes or between patients with functioning as compared with nonfunctioning tumors.

Broder, L. E.; and Carter, S. K. (Cancer Therapy Evaluation Branch, Division of Cancer Treatment, National Cancer Institute, NIH, Bethesda, Maryland): PANCREATIC ISLET CELL CARCINOMA II. RESULTS OF THERAPY WITH STREPTOZOTOCIN IN PATIENTS. Ann. Intern. Med. *79*:108-18, July 1973.

Verbatim summary. The clinical experience with streptozotocin (NSC-85998) in fifty-two patients with metastatic islet cell carcinoma was analyzed. The drug was given intravenously in forty-four patients and intra-arterially in eight patients, most often on a weekly schedule of administration of 0.6 to 1.0 gm. per square meter body surface area. Biochemical responses were seen in 64 per cent of evaluable functional cases, and measurable disease responses were seen in 50 per cent of these cases. Insulin responses occurred two to three weeks after drug administration at a total dose of about 2 to 4 gm. per square meter body surface area. A significant increase in one year survival rate and a doubling of median survival were shown for the responders as compared with the nonresponders. Acute toxicity, consisting of nausea and vomiting, was observed in 98 per cent of the cases, whereas renal or hepatic toxicity was seen in 65 per cent and 67 per cent of the cases, respectively. Hematological toxicity, observed in 20 per cent of the cases, was mild. Renal and hepatic toxicity

were usually reversible, but five patients died with renal failure.

Creutzfeldt, W.; Arnold, R.; Creutzfeldt, C.; Deuticke, U.; Frerichs, H.; and Track, N. S. (Division of Gastroenterol. and Metab., Dept. of Med., Univ. of Göttingen, Germany): BIOCHEMICAL AND MORPHOLOGICAL INVESTIGATIONS OF 30 HUMAN INSULINOMAS. CORRELATION BETWEEN THE TUMOUR CONTENT OF INSULIN AND PROINSULIN-LIKE COMPONENTS AND THE HISTOLOGICAL AND ULTRASTRUCTURAL APPEARANCE. Diabetologia 9:217-31, April 1973.

Verbatim summary. Thirty human insulinomas have been investigated histologically and their immunoreactive insulin (IRI) content estimated. In most cases immunohistological and ultrastructural studies were also performed and the percentage of proinsulinlike components (PLC) in the tumor determined. Except for one case the IRI concentration in the tumors was lower (0.01-89.0 U./gm.) than in the islet tissue. Histologically, immunohistologically and ultrastructurally a variable number of tumor cells contained few and often no beta granules, indicating a decreased storage capacity for insulin. This defective storage capacity seems to be the major functional abnormality of insulinoma cells. Ultrastructurally four types of insulinoma can be distinguished. The ultrastructural diagnosis of an insulinoma can only be made in type I (typical beta granules, thirteen cases) and type II (typical and atypical granules, seven cases) but not in type III (typical granules only, four cases) and type IV (virtually agranular, four cases). The type IV tumors had the lowest IRI concentration and did not respond to diazoxide treatment. The IRI concentration of the uninvolved pancreas of nineteen patients was 2.0 ± 0.2 U./gm. and in the range of nondiabetic adults.

The percentage PLC in nineteen insulinomas was higher (5.3-22 per cent) than in the pancreas of adults with and without insulinoma (1.7 to 4.8 per cent). The percentage of PLC in the serum of patients with insulinoma was always higher than in their tumors (33-61 per cent). It is suggested that the higher PLC levels found in the tumor and serum of insulinoma patients are the consequence of the reduced storage capacity of the tumor cells resulting in a rapid passage through the granular route or even a nongranular release of newly synthesized insulin.

De Moor, P., and Geboes, K. (Rega Inst., Kliniek voor Inwendige Geneeskunde, Acad. Ziekenhuis St. Rafaël, Leuven, Belgium): THE LIFESPAN OF PARENTS OF DIABETIC SUBJECTS. Diabetologia 9:232-34, June 1973.

Verbatim summary. Fathers of diabetic men or women live longer than the mothers of these patients. This unusual feature is due to diminished lifespan of the mothers and perhaps to an unusual longevity of the fathers. The latter phenomenon seems to be restricted, at least in men, to propositi with the noninsulin dependent type of diabetes. The shorter lifespan of the mothers of diabetics is found both in obese and in thin propositi. The extra longevity of the fathers, however, is not found in the latter propositi. Thin men, both diabetic and nondiabetic, have fathers who live longer than the fathers of obese men.

Freytag, G.; Jansen, F. K.; and Klöppel, G. (Inst. of Pathol., Univ. of Hamburg, and Diabetes Res. Inst. at the University of Düsseldorf, Germany): IMMUNE REACTIONS TO FRACTIONS OF CRYSTALLINE INSULIN. I. SIGNIFICANCE OF LYMPHOCYTIC INFILTRATES IN THE ENDOCRINE AND EXOCRINE PANCREAS OF MICE. Diabetologia 9:185-90, 1973.

Verbatim summary. Mice immunized with once crystallized or chromatographed insulin at various doses throughout a period of three months, in order to investigate "tolerance induction" to different insulin preparations unexpectedly revealed lymphocytic infiltrates in endocrine and exocrine pancreas. Peri-insulitis, periductulitis and, sometimes, interstitial pancreatitis were observed in animals injected with chromatographed insulin or once crystallized insulin, which can be fractionated into true Sanger insulin, a number of insulin compounds including proinsulin, and many undefined proteins of higher molecular weight. While the occurrence of periductulitis was not dependent on dosage, peri-insulitis was only found with certain dose ranges in both groups. Injections of once crystallized insulin evoked peri-insular infiltrates at a low dosage, injections of chromatographed insulin at a high dosage. The possibility is discussed as to whether the peri-insular and periductular infiltrates reflect a cellular immune response induced by fractions of crystalline insulin, which may differ from true Sanger insulin.

Jansen, F. K.; Freytag, G. (Diabetes Res. Inst. at the Univ. of Düsseldorf and Path. Inst., Univ. of Hamburg, Germany). IMMUNE REACTIONS TO FRACTIONS OF CRYSTALLINE INSULIN. II. MAY PERI-INSULIN BE PRODUCED BY AN ANTIGEN DIFFERENT FROM TRUE SANGER INSULIN? Diabetologia 9: 191-96, June 1973.

Verbatim summary. The immunization of mice with impure, once crystallized porcine insulin in different doses over three months led to a high antibody titer; 1 μg. monocomponent(-MC-) porcine insulin effected only a low antibody response after three months of immunization, thus proving a low immunogenicity. A single insulin adjuvant immunization differentiated between stimulated, normally reacting and tolerant animals. In stimulated animals with high titer antibodies no insulitis was found, but some animals tolerant towards insulin produced an insulitis, suggesting that this cellular immune reaction may not be induced by true Sanger insulin. The antigen responsible for insulitis may be an antigenically independent antigen contained in crystallized insulin, or an antigenically related derivative of insulin.

Haeckel, R. (Institut für Klinische Chemie Medizinische Hochschule, Hannover): INHIBITION OF GLUCOSE FORMATION FROM FRUCTOSE BY PHENFORMIN IN PERFUSED GUINEA PIG LIVERS. Diabetologia 9:161-64, April 1973.

Verbatim summary. Glucose formation from fructose was inhibited by 4 x 10^{-5} mol/L. phenylethylbiguanide (DBI) in perfused guinea pig livers. The pattern of hepatic metabolite concentrations revealed a cross-over phenomenon between fructose and fructose-1-phosphate indicating that the phosphorylation of the substrate was influenced by the biguanide. It is suggested that this effect was due to a decrease of the ATP/ADP ratio observed in the presence of DBI.

Hewing, R.; Liebermeister, H.; Daweke, H.; Gries, F. A.; Grüneklee, D. (Second Med. Clin. and Diabetes Res. Inst. at the Univ. of Düsseldorf, Germany): WEIGHT REGAIN AFTER LOW CALORIE DIET: LONG TERM PATTERN OF BLOOD SUGAR, SERUM LIPIDS, KETONE BODIES AND SERUM INSULIN LEVELS. Diabetologia 9:197-202, June 1973.

Verbatim summary. Four years after controlled clinical

treatment with a 1000 calorie mixed diet, twenty-four patients were reinvestigated to assess (1) whether the improved metabolism, as observed during therapy, is merely the result of starvation and (2) to what extent this improvement continues beyond the time of dietary treatment. The following tests were carried out: Oral GTT (100 gm.), immunoreactive insulin, free fatty acids, free glycerol, triglycerides, cholesterol, acetoacetate and beta-hydroxybutyrate. Twelve patients had been able to maintain their weight or reduce further. They showed a slightly improved glucose tolerance and a more normal secretion kinetic for insulin release. However, twelve individuals who were found to have a 35 per cent weight gain (Broca), returning almost to their initial weight, showed a decreased glucose tolerance compared with previous examination, while insulin levels were slightly elevated, with a typically delayed secretion. Both groups showed a weight-independent elevation of cholesterol and triglyceride levels and a marked decline of plasma FFA, free glycerol and ketone bodies. The parameters of lipid metabolism may possibly be influenced by the composition of the diet, while a change of weight after reduction primarily affects blood sugar levels and, to a lesser extent, insulin levels.

Hoftiezer, V.; and Carpenter, A.-M. (Dept. of Anat., Univ. of Minnesota, Minneapolis, Minn.): COMPARISON OF STREPTOZOTOCIN AND ALLOXAN-INDUCED DIABETES IN THE RAT, INCLUDING VOLUMETRIC QUANTITATION OF THE PANCREATIC ISLETS. Diabetologia 9:178-84, June 1973.

Verbatim summary. Diabetes was induced in rats with equal molar dosages of either streptozotocin or alloxan. The clinical course of the diabetes (mortality, hyperglycemia, weight loss, polydipsia, hyperphagia, polyuria, glycosuria and diabetic indices) was recorded for six weeks before the animals were sacrificed for volumetric quantitation of the pancreatic islets. No significant differences in the pancreas (islet volumes of pancreas; beta, alpha and nongranular cell volumes and vessel volumes of both islet and total pancreas) were seen between the two groups, although differences in the clinical parameters were observed. The diabetic index at three and four weeks post injection was the clinical parameter which best reflected the terminal pancreatic beta cell volume. Analysis of the scanning data adds further empirical support for the accuracy of the linear scan method of quantitation.

Iynedjian, P. B. (Inst. of Pharmacol., Univ. of Lausanne, Lausanne, Switzerland): POSSIBLE CONTRIBUTION OF RENAL GLUCONEOGENESIS TO THE DEVELOPMENT OF N-MONOMETHYLACETAMIDE-INDUCED HYPERGLYCEMIA IN THE RAT. Diabetologia 9:130-34, April 1973.

Verbatim summary. The gluconeogenic capacity of the rat kidney cortex in experimental diabetes induced by N-monomethylacetamide (NMMAA) was studied. Renal cortical slices from NMMAA diabetic rats synthesized glucose at an accelerated rate from pyruvate, α-ketoglutarate or fructose, but not from glutamine. In contrast, NMMAA added to the incubation medium inhibited glucose production by slices from normal rats, irrespective of the substrate used. To evaluate the role of renal gluconeogenesis in vivo, the effect of bilateral nephrectomy on the development of NMMAA-induced hyperglycemia was studied. The hyperglycemic effect of NMMAA was markedly blunted in nephrectomized rats. On the other hand, ureteral ligation after NMMAA administration did not prevent a normal rise in blood glucose. These data are consistent with the view that the stimulated renal gluconeogenesis in the NMMAA diabetic rat represents a significant proportion of total carbohydrate production in the body, and contributes to the elevation of the blood glucose level.

Kanich, R. E.; Craighead, J. E.; and Kessler, J. B. (Dept. of Pathol., Univ. of Vermont Coll. of Med., Burlington, Vt.): LESIONS OF RENAL GLOMERULI IN MICE WITH VIRUS-INDUCED DIABETES MELLITUS-LIKE DISEASE. Diabetologia 9: 203-09, June 1973.

Verbatim summary. Encephalomyocarditis (EMC) virus-infected DBA/2 mice develop a diabetes mellitus-like disease. Many animals survive the acute viral infection and exhibit hyperglycemia and glycosuria for varying periods thereafter. Accumulations of homogeneous, electron dense, basement membrane-like material are observed in the mesangium of the glomerulus of these animals as early as three months after inoculation. The peripheral capillary basement membranes are not affected. Since the alterations are not found in uninfected animals, it is assumed that the abnormal metabolic state or the virus infection, or both processes, are responsible for the glomerular changes. Further investigation will be required to elucidate the pathogenesis of this obscure lesion.

Oakley, N. W.; Monier, D.; and Wynn, V. (Alexander Simpson Lab. for Metabolic Res., St. Mary's Hosp. Med. Sch., London, W. 2): DIURNAL VARIATION IN ORAL GLUCOSE TOLERANCE: INSULIN AND GROWTH HORMONE CHANGES WITH SPECIAL REFERENCE TO WOMEN TAKING ORAL CONTRACEPTIVES. Diabetologia 9:235-38, 1973.

Verbatim summary. Plasma glucose, immunoreactive insulin, and growth hormone (GH) have been estimated during morning (AM) and afternoon (PM) oral glucose tolerance tests (GTT) in a group of twenty-two subjects, thirteen of whom were young women receiving combined estrogen-progestogen oral contraceptives. Impaired PM glucose tolerance with associated delay and impairment of insulin secretion has been confirmed, as has the inverse correlation between obesity and diurnal GTT variation. Diurnal changes in GH are unlikely to be responsible for this circadian GTT rhythm. Patients on oral contraceptives continue to show a normal GTT rhythm, so that a mildly abnormal AM test is likely to be associated with a more severely diabetic PM test. These observations indicate that while obesity and oral contraceptive use may have metabolic features in common, they differ in this respect; they support the view that, if possible, carbohydrate tolerance should be monitored in women taking oral contraceptives in whom a tendency to diabetes is suspected.

Osterby, R. (Univ. Inst. of Pathol. and the 2nd Univ. Clin. of Intern. Med., Kommunhospitalet, Aarhus, Denmark): MORPHOMETRIC STUDIES OF THE PERIPHERAL GLOMERULAR BASEMENT MEMBRANE. II. TOPOGRAPHY OF THE INITIAL LESIONS. Diabetologia 9:108-14, April 1973.

Verbatim summary. Glomerular basement membrane thickness has been estimated by quantitative electron microscopic study in control subjects and in juvenile diabetics at onset and with short-term diabetes. The juxta-mesangial part of the basement membrane as well as basement membranes located close to the vascular pole were considered separately and their thickness compared with the remainder of the basement membrane of the same cross section. It was found that basement membrane, both close to mesangial regions and to the vascu-

lar pole, showed greater variation in thickness than the remainder of the glomerular basement membrane. The deviations were, however, small. The initial thickening occurring in diabetic patients after a few years of the disease was shown to take place as a generalized phenomenon over the entire cross section and did not primarily affect the basement membrane close to mesangial regions or the vascular pole.

Puls, W.; and Keup, U. (Inst. of Pharmacol., Bayer AG, Wuppertal, Germany): INFLUENCE OF AN α-AMYLASE INHIBITOR (*BAY* D 7791) ON BLOOD GLUCOSE, SERUM INSULIN AND NEFA IN STARCH LOADING TESTS IN RATS, DOGS AND MAN. Diabetologia 9:97-101, April 1973.

Verbatim summary. An α-amylase inhibitor isolated from wheat was used in experiments involving rats, dogs and healthy volunteers. The hyperglycemia and hyperinsulinemia resulting from starch loading could be reduced dose dependently by the inhibitor. Its inhibitory effect was specific and limited to α-amylase. In loading tests with cooked starch the effect on blood sugar was markedly diminished.

Rodman, Harvey M.; and Bleicher, Sheldon J. (Div. of Endocrinol. and Metab., Jewish Hosp. and Med. Center of Brooklyn, Brooklyn, N.Y.): PLASMA CORTISOL DURING NORMAL GLUCOSE TOLERANCE. Metabolism 22:745-48, May 1973.

During oral glucose tolerance tests, plasma cortisol values were found to rise significantly during the first hour of the test. Since there is a time-lag before glucocorticoids can exert a contrainsular effect, it is suggested that changes in cortisol levels observed early in the glucose tolerance test may play an important role in the posthyperglycemic recovery phase of the test. C.R.S.

Schatz, H.; Abdel Rahman, Y.; Hinz, M.; Fehm, H. L.; Nierle, C.; and Pfeiffer, E. F. (Dept. of Endocrinol. and Metab., Center of Intern. Med. and Pediatr., Univ. of Ulm, Ulm/Donau, Germany): HYPOPHYSIS AND FUNCTION OF PANCREATIC ISLETS. I. THE INFLUENCE OF HYPOPHYSECTOMY ON BIOSYNTHESIS OF PROINSULIN AND INSULIN IN ISOLATED PANCREATIC ISLETS OF RATS. Diabetologia 9:135-39, April 1973.

Verbatim summary. Insulin secretion and biosynthesis of pro-insulin and insulin were determined in isolated pancreatic islets of hypophysectomized rats. Control rats were of both same age and weight. Hypophysectomy was performed either thirteen or five weeks prior to the investigation, the weight of the animals being either 80 or 170 gm. Biosynthesis of insulin was estimated from the amounts of radioactivity incorporated into proinsulin and insulin after incubation of isolated islets at 50 or 300 mg. per cent glucose in the presence of 3-H-leucine for three hours. Islet proteins were separated on Sephadex G 50 fine.

Hypophysectomy resulted in a significant decrease of both glucose stimulated secretion and biosynthesis of insulin. It was found that this reduction was (1) more significant when compared with controls of same age (2) more marked in rats which had been hypophysectomized thirteen weeks before than in rats after an interval of five weeks and (3) less in rats which had been hypophysectomized at a weight of 170 gm. than in rats in whom pituitary ablation was performed at a weight of 80 gm. At basal glucose concentrations, no significant changes of secretion and biosynthesis of insulin were apparent. The relation of radioactivity incorporated into proinsulin and insulin was unchanged under all conditions. Insulin content of the isolated islets used was found within about the same range in all rats, apart from the animals which had been hypophysectomized thirteen weeks before. In islets of these rats, a reduction to 84 per cent was observed. Our findings may be explained by reduced sensitivity of the pancreatic β-cell to glucose and a slower rate of insulin biosynthesis after hypophysectomy.

Toeller, M.; and Knussmann, R. (Diabetes Res. Inst. at the Univ. of Dusseldorf): REPRODUCIBILITY OF ORAL GLUCOSE TOLERANCE TESTS WITH THREE DIFFERENT LOADS: Diabetologia 9:102-07, April 1973.

Verbatim summary. Oral glucose tolerance tests (5 x 50 gm., 5 x 75 gm. and 5 x 100 gm. glucose load) were carried out in twenty healthy male volunteers on fifteen separate occasions at intervals of three or four days. The mean age of a group of younger men was 39.4 years and of a group of older men, 68.2 years. One and two hours after the administration of 100 gm. glucose the whole group showed a significantly smaller individual variation of blood sugar response than after both 50 and 75 gm. When subdividing the groups of young and old men the same trend was noted. Oral glucose tolerance tests with a 100 gm. glucose load showed a greater reproducibility than those with 50 and 75 gm. load.

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van Haeringen, N. J.; Oosterhuis, J. A.; Terpstra, J.; and Glasius, E. (Eye Clin., Univ. Hosp., Amsterdam, Eye Clinic, Diabetes Dept., Univ. Hosp., Leyden, The Netherlands): ERYTHROCYTE AGGREGATION IN RELATION TO DIABETIC RETINOPATHY. Diabetologia 9:20-24, February 1973.

Verbatim summary. Erythrocyte aggregation, plasma fibrinogen concentrations and serum protein fractions have been studied in nineteen diabetic patients without retinopathy, eighteen patients with retinopathy and forty-one nondiabetic controls. Significant differences in the parameters were observed between diabetics and controls. The differences between the diabetics with and without retinopathy were not significant. The role of abnormal erythrocyte aggregation in the development of diabetic retinopathy is discussed. Striking parallels were found with similar findings concerning platelet aggregation in diabetics.