ABSTRACTS

Antonowicz, Irena; Reddy, Vinodini; Khaw, Kon-Taik; and Schwachman, Harry (Div. of Clin. Labs. and Res., and Dept. of Med., Children's Hosp. Med. Centre, and Dept. of Pediat., Harvard Med. Sch., Boston, Mass.): LACTASE DEFICIENCY IN PATIENTS WITH CYSTIC FIBROSIS. Pediatrics *42*:492-500, September 1968.

From a group of twenty-eight patients with cystic fibrosis, seven were found to have lactose intolerance of varying degrees of severity. Oral glucose tolerance was normal in this group whereas oral lactose tolerance tests revealed flat blood sugar responses. Intestinal mucosa was biopsied, and the histology was normal. Enzyme assays for mucosal sucrase, maltase, palatinase and lactase were performed and lactase alone was deficient. It was suggested that lactase deficiency may be a primary genetic disorder among a significant number of patients with cystic fibrosis, but that further investigation would be required to explain this association. R.K.K.

Bagdade, John D.; Porte, Daniel, Jr., and Bierman, Edwin L. (Dept. of Med., Univ. of Washington Sch. of Med. and the V. A. Hosp., Seattle, Wash.): HYPERTRIGLYCERIDEMIA, A METOBOLIC CONSEQUENCE OF CHRONIC RENAL FAILURE. New Eng. J. Med. 279:181-85, July 25, 1968.

Gross lipemia has reecntly been observed in patients with stable, nonnephrotic uremia undergoing chronic hemodialysis. To determine the frequency and possible mechanism of plasma triglyceride elevation in chronic renal failure and its relation to uremia and hemodialysis, studies were carried out in twenty-five patients on chronic hemodialysis and thirteen undialyzed patients with chronic azotemia. Lipoprotein lipase was assessed indirectly by measurement of postheparin lipolytic activity in plasma.

Basal plasma triglyceride levels were elevated in both undialyzed (164 ± 62 mg. per 100 ml.) and dialyzed (276 ± 250 mg. per 100 ml.) subjects with non-nephrotic uremia. Statistical analysis of the data indicates that hypertriglyceridemia is a general feature of uremia more apparent in patients undergoing chronic hemodialysis. Basal insulin values were higher in both uremic groups. Increased hepatic synthesis of triglyceride-rich lipoprotein may contribute to triglyceride elevation in uremia.

Subnormal peak postheparin lipolytic activity was demonstrated in both dialyzed and undialyzed subjects. An observed decline in triglyceride was consistent with increased removal stimulated by continuous heparin administration.

The degree of triglyceride elevation observed in both dialyzed and undialyzed uremic patients is unusual in nonobese subjects and suggests that hypertriglyceridemia may be a metabolic consequence of non-nephrotic uremia. This condition may be fostered by changes in triglyceride production and assimilation. B.R.B.

Bischoff, A. (Res. Div. of the Dept. of Neurol., Univ. of Zurich, Zurich, Switzerland): DIABETIC NEUROPATHY: MORBID ANATOMY, PATHO-PHYSIOLOGY AND PATHOGENESIS BASED ON ELECTRONMICROSCOPIC FINDINGS. German Med. Mth. *13*:214-18, May 1968.

Verbatim summary. Electron microscopic studies of peripheral nerve biopsies from thirteen diabetics, including three juveniles, revealed pathological changes in all. The main findings, present also in asymptomatic juvenile diabetics, were hyperplasia of the basement membrane enveloping the Schwann cells and an accumulation of lipid-containing substances, especially phospholipids, in the cytoplasm of the Schwann cells. The histopathological basis of diabetic neuropathy is thus a primary disturbance of the Schwann cell and its product, the myelin sheath. These findings point to a metabolic defect predominantly affecting fat metabolism within this cell. Beside this, an associated hyperplasia of the basement membrane may be a significant factor in the development of the pathophysiological manifestations.

Christensen, Niels, J. (Arhus University Sch. of Med., Arhus, Denmark): INCREASED SKIN CAPILLARY RESISTANCE AFTER HYPOPHYSECTOMY IN LONG-TERM DIABETICS. Lancet *2*:1270-71, Dec. 14, 1968.

The author compared skin capillary resistance of the forearm in fifteen nonhypophysectomized diabetic and fifteen hypophysectomized diabetic subjects. Capillary resistance was quantitated by inflating a blood pressure cuff to a pressure of 80 mm. Hg for four minutes and counting petechiae within two 2.5 cm. circles on the annterior forearm. The ages, duration of diabetes and sex prevalence were similar. Half of the nonhypophysectomized patients had evidence of severely reduced capillary resistance while none of the hypophysectomized patients showed this abnormality. The findings support the assertion that hypophysectomy improved the integrity of all capillaries of the body and may partly explain the improvements in diabetic retinopathy seen after hypophysectomy. T.G.S.

Cook, G. C. (Dept. of Med., Makerere Univ. Coll., and the Mulago Hosp., Kampala, Uganda): GLUCOSE AND STARCH TOLERANCE AFTER RECOVERY FROM KWASHIORKOR. Metabolism *17*:1073-83, December 1968.

Intravenous glucose tolerance was impaired in Ugandan children with a history of kwashiorkor. Following oral glucose administration the two and one-half hour blood glucose levels were significantly greater in those who had had kwashiorkor than the control groups. However, after oral starch administration (starch tolerance test) the blood glucose levels were lower in treated kwashiorkor patients than in controls. A significant correlation is described between the individual K values and ratios of maximum blood glucose after oral starch to oral glucose. These results suggest that children who have had kwashiorkor, even if adequately treated, have a higher incidence of pancreatic impairment than the normal groups. Protein malnutrition may be of importance in the etiology of pancreatic disease in these children. C.R.S.

Daweke, H.; Rüenauver, R.; Schilling, W.; Grüneklee, D.; Jahnke, K.; Liebermeister, H.; Gries, F. A.; and Oberdisse, K. (Medizinische Universitätsklinik und Diabetes-Forschungsinstitut, Univer. Düsseldorf, Düsseldorf, W. Germany): INVESTIGATIONS OF CARBOHYDRATE AND FAT METABOLISM IN PREDIABETES. Diabetologia *4*:349-57, 1968.

Verbatim summary. Because of the known changes of fat metabolites and elevated serum insulin levels in obesity, only investigations of normal-weight prediabetics can result in findings that are characteristic for genetically determined prediabetes. Serum insulin-like activity (ILA) and immunoreactive serum insulin (IRI) during oral GTT, free fatty acids (FFA) during intravenous GTT, and in some of the subjects cholesterol, triglycerides and esterfied fatty acids were examined in sixty-six persons where both parents were diabetics and compared with a normal control group. Subjects with pathological oral and/or intravenous GTT and those more than 10 per cent overweight were excluded and evaluated separately. A significant elevation of fasting ILA levels was observed only in the overweight group, but not in normal-weight prediabetics; fasting IRI levels were rather low in all groups. In normal-weight prediabetics the rise in IRI and ILA during oral GTT was less than that in normal subjects and was delayed, a diminished insulin-reserve was found with both methods, and the decrease in FFA levels during intravenous GTT was significantly smaller. No other disturbance of fat metabolism was observed.

The following conclusions were reached: 1. Elevated fasting ILA levels are not the rule in normal-weight prediabetics and must be attributed to concomitant overweight or obesity. They cannot be considered characteristic of genetically determined prediabetes. 2. Since IRI is also not increased, there is no reason to assume insulin antagonistic mechanisms in the prediabetic state. 3. The delayed and diminished rise of insulin after glucose which we found in good accordance with both methods for insulin determination, as well as the diminished insulin reserve and the delayed decrease of FFA after glucose, suggests an early and primary impairment of insulin secretion. 4. Since investigations in nondiabetic and monozygotic twins of diabetics have confirmed the results described above, the possibility of detecting the prediabetic state in individual cases is conceivable.

DeFelice, S. L.; and Gilgore, S. G. (Dept. of Clin. Pharmacol., St. Vincent's Hosp. and Med. Center, New York, N.Y.): A COMPARISON OF THE EFFECT OF SODIUM SALICYLATE ON BLOOD GLUCOSE AND PLASMA NONESTERIFIED FATTY ACIDS IN THE FED AND FASTING STATES. Amer. J. Med. Sci. 256:202-05, September 1968.

Five adult obese subjects received 5 gm. of sodium salicylate dissolved in 500 ml. of physiological saline intravenously over a two-hour period in the postabsorptive state (after an overnight fast) and after three days of fasting. Blood glucose levels were unchanged by the administration of the sodium salicylate but the plasma nonesterified fatty acid (NEFA) levels were lowered below fasting levels after the three-day fast, but not before. The authors conclude that this observation implies that the plasma NEFA lowering effect of salicylates is probably not related to increased peripheral utilization of blood glucose. S.B.B.

Devlin, James G.; and Stephenson, Nuala (Dept. of Med. and Therapeutics Univ. Coll., Dublin, Ireland): HYPERINSULINISM WITH HYPOGLYCEMIA FOLLOWING ACUTE MYOCARDIAL INFARCTION. Metabolism 17:999-1004, November 1968.

In nine patients with myocardial infarction, hypoglycemia accompanied by hyperinsulin was observed during an initial period of seven days. Subsequently, the blood glucose values returned to normal despite persistence of hyperinsulinism. Neither plasma cortisol nor twenty-four-hour urinary VMA excretion was altered during the initial period. The basis for hyperinsulinemia following acute infarction remains unexplained. C.R.S.

Ellenberg, Max (Dept. of Med., The Mount Sinai Hosp., New York. N.Y.): DIABETIC NEUROPATHIC ULCER. J. Mount Sinai Hosp., N.Y. 35:585-94, November-December 1968.

Thirty-six diabetic patients with neuropathic ulcers were studied. Males predominated over females twenty-three to thirteen. The age range was thirty-two to seventy-five years of age. Sixteen patients had diabetes less than ten years, and twenty had the disease longer than ten years. In four patients the ulcer was the presenting sign of diabetes. Many patients had a distinct injury precipitating the onset of the ulcer.

Almost all of the ulcers involved the area over the head of the first, second and third metatarsals. Peripheral vascular status was not impaired, indicating that the lesion is not related to inadequate blood supply. Most of the patients were under fair or good control. All of the patients had evidence of peripheral neuropathy; all had impairment of pain perception. Most had involvement of touch, temperature, pinprick and position sense. Neurogenic small muscle atrophy resulted in abnormal foot alignment which forced the body weight to be borne by areas not originally designed for this purpose. The lesion was thus predictable at the site of pressure.

Treatment consisted of mechanical relief of pressure aided by control of infection and debridement. Removal of the offending metatarsal head was necessary in resistant cases. P.S.E.

Feinberg, Leonard J.; Sandberg, Herschel; DeCastro, Oscar; and Bellet, Samuel (Div. of Cardiology, Philadelphia Gen. Hosp. Philadelphia, Pa.) EFFECTS OF COFFEE INGESTION ON ORAL GLUCOSE TOLERANCE CURVES IN NORMAL HUMAN SUBJECTS. Metabolism 17:916-22, October 1968.

Glucose tolerance tests were performed with and without instant coffee added to the glucose test load in the same subjects on two occasions. The coffee-glucose tolerance tests resulted in a significantly lower blood glucose at 30 and 60 min. while the free fatty acids at three hours were significantly higher than in the tests performed without coffee. There were no differences observed in the serum immunoreactive insulin levels between the two tests. It is possible that caffeine from coffee stimulates release of intestinal hormones which promote insulin secretion thus lowering the blood glucose. The insulin concentrations are not raised because of hepatic inhibition of the hormone. C.R.S.

Ford, Starr, Jr.; Bozian, Richard C.; and Knowles, Harvey C., Jr. (Dept. of Med., Univ. of Cincinnati Coll. of Med., Cincinnati, Ohio): INTERACTIONS OF OBESITY, AND GLUCOSE AND INSULIN LEVELS IN HYPERTRIGLYCERIDEMIA. Amer. J. Clin. Nutr. 21:904-10, September 1968.

Evidence suggests that hypertriglyceridemia is associated with hyperglycemia, hyperinsulinemia and acquired obesity. To investigate the interactions between these variables and the relative importance of each, hyperlipidemia was evaluated in fifteen patients with hypertriglyceridemia and five control patients. Patients were given a three-hour oral glucose toler-

ance test during which glucose and immunoreactive insulin levels were measured at hourly intervals. Multiple correlation analysis demonstrated separate correlation between glucose and triglyceride concentrations, independent of the effects of relative body weight and insulin levels. Triglyceride and insulin concentrations were significantly correlated not only with each other but also with relative body weight. Relative body weight and insulin response to oral glucose were highly interrelated and acted together as another factor significantly correlated with plasma triglyceride levels. Fasting triglyceride levels in hypertriglyceridemic patients appear to be determined by blood levels of glucose and insulin; with insulin levels highly dependent upon the degree of obesity. B.R.B.

Gladtke, E.; Dost, F. H.; Hattingberg, M. v.; and Rind, H. (Dept. of Pediat., Univ. of Giessen and the Pediat. Sect., City Hosp. Fulda, Germany): GLUCOSE METABOLISM IN THE NEWBORN. Germ. Med. Mth. *13*:436-38, September 1968.

Verbatim summary. The causes of low blood sugar levels in the newborn infant were studied by means of the intravenous glucose tolerance test. It was found that a reduced transfer (turnover) with a low turnover constant (assimilation coefficient) was responsible for the low blood-glucose level. A sluggish response of the mechanisms regulating glucose metabolism is a likely cause of these findings. The various components of glucose metabolism attain the levels of older infants between the fifth and tenth days of life. The functional maturation of glucose metabolism thus proceeds relatively rapidly in the newborn.

Grasso, S.; Saporito, N.; Messina, A.; and Reitano, G. (Dept. of Morbid Anatomy, Pediat., and Gen. Path., Univ. of Catania, Catania, Italy): SERUM-INSULIN RESPONSE TO GLUCOSE AND AMINO ACIDS IN THE PREMATURE INFANT. Lancet *2*:755-56, Oct. 5, 1968.

In the premature infants blood glucose tends to be low at birth and remain low and serum insulin tends to rise slowly or not at all after glucose administration. These findings suggest that the infant's pancreas is relatively insensitive to glucose stimulation. In this study eighteen infants (seven to eighteen hours old) weighing 1,610 to 2,380 gm. were infused with glucose or a mixture of essential amino acids using an umbilical vein catheter. Glucose infused at a rate of 2.5 gm./kg. for two hours induced blood glucose levels over 250 mg. per 100 ml. but did not cause an increase in serum immunoreactive insulin over 32 μU./ml. In contrast amino acid infusions of 2.5 gm. over thirty minutes increased serum insulin 20 to 153 $\pm$ 41 μU./ml. The results indicate that the premature infant has an insulin reserve which can be stimulated by amino acids but not glucose. This finding suggests that the role of insulin in prematurity is to stimulate synthesis of protein during a time of very active growth. T.G.S.

Grodzki, M.; Mazurkiewicz-Rozynska, E.; and Czyzyk, A. (2nd Dept. Internal Diseases, Central Clinical Hosp., Warsaw, Poland): DIABETIC CHOLECYSTOPATHY. Diabetologia *4*:345-48, 1968.

Verbatim summary. In a group of patients with juvenile-onset diabetes of over ten years' duration without known liver and bile duct diseases the following examinations were performed: 1. cholecystography; 2. measurement of the time of contraction of the Lütkens' and Oddi's sphincters; 3. measurement of the time of gallbladder contraction; 4. measurement of the time of BSP appearing in the bile. Compared with the control group, there was a markedly more frequent impairment of gallbladder contraction (in 47 per cent of cases), as well as prolongation of the time of Lütkens' sphincter contraction (82.5 per cent), prolongation of the time of the efflux of bile from the gallbladder (70.6 per cent) and prolongation of the bile BSP time (58.8 per cent). The calculated means have shown in diabetic patients a significant prolongation of the Lütkens' sphincter contraction (8 min.: 4 min.), of the time of the efflux of bile from the gallbladder (28 : 18) and of the bile-BSP time (24 : 19).

The results obtained prove a greater incidence of gallbladder hypotony in patients with long-lasting diabetes. That dysfunction of the gallbladder seems to be a specific complication of diabetes, similar to others found in the gastrointestinal tract of diabetic patients.

Guidoux, R., (Institut de Pharmacol. de l'Univer. de Lausanne, Lausanne, Suisse): DIABETOGENIC EFFECTS OF THIAZIDE DIURETICS AND OF THE SOLVENT N-MONOMETHYL-ACETAMIDE IN RATS. Diabetologia *5*: 11-21, 1969.

Verbatim summary. Large doses of hydrochlorothiazide (50—200 mg./kg./day per os) given for five to six weeks did not induce any increase in the fasting blood-sugar concentration, nor any decrease of glucose tolerance in normal rats and in rats "sensitized" toward diabetogenic agents by a subtotal pancreatectomy or by a subdiabetogenic dose of alloxan. No increase in blood sugar was found in the eight hours following a single oral dose of 50 mg./kg. of hydrochlorothiazide. Large doses ($>$ 3.5 ml./kg.) of the solvent N-monomethyl-acetamide (NMMAA), used at one time in the preparation of one brand of hydrochlorothiazide for injection, on the other hand, exerted marked diabetogenic effects in the rat. Lethal doses of NMMAA always induced a diabetic syndrome, i.e., progressive hyperglycemia with ketonemia and metabolic acidosis resembling the diabetic syndrome induced by large doses of anti-insulin serum. Fractions of lethal doses given repeatedly on successive days had additive diabetogenic and lethal effects: the drug or its toxic metabolites appeared to persist for a long time in the organism. Sublethal doses of NMMAA induced a reversible hyperglycemia of some days' duration. Thus the diabetes induced by NMMAA was either transitory or lethal. Chronic treatment with doses $<$ 0.8 ml./kg./day did not induce any signs of toxicity within six to eight months. In the rats intoxicated with lethal doses of NMMAA, the serum concentration of immunoreactive insulin (IRI) increased simultaneously with the glycemia, and attained the same levels as in normal rats with similar blood glucose concentrations established by oral or intravenous loads with glucose. The insulin secreted during NMMAA hyperglycemia, thus, did not lower the blood sugar. During NMMAA hyperglycemia, in contrast to glucose-induced hyperglycemia in normal rats, the fraction of the insulin-like activity of the serum suppressed by anti-insulin serum (SILA) did not rise to detectable levels: i.e., the IRI of the intoxicated animals did not appear to exert an insulin-like effect on normal isolated adipose tissue. The blood sugar lowering effect of exogenous porcine insulin was depressed in rats intoxicated with NMMAA in comparison with normal animals or animals with alloxan-induced diabetes. The findings lead to the conclusion that rats intoxicated with

NMMAA inactivate exogenous as well as endogenous insulin. Although losing its metabolic activity, the inactivated endogenous insulin remains immunologically competent.

Gürson, Cihad T.; and Etilli, Lale, (Dept. of Pediat, Univ. of Istanbul, Cerrahpasa, Istanbul, Turkey): RELATION BETWEEN ENDOGENOUS LIPOPROTEIN LIPASE ACTIVITY, FREE FATTY ACIDS, AND GLUCOSE IN PLASMA OF WOMEN IN LABOUR AND OF THEIR NEWBORNS. Arch. Dis. Child. *43*:679-83, December 1968.

Verbatim summary. Free fatty acids, glucose, and lipoprotein lipase activity were determined in the plasma of healthy pregnant women in the last stage of labor, in cord blood, and in the plasma of the newborns. One group of newborns was left fasting and a second group was fed glucose (50 gm./m.^{2}) during the first ninety minutes after birth.

Endogenous lipoprotein lipase activity determined in the third hour after birth was significantly raised in the fasted group of newborns. The rise in free fatty acid levels was also more striking in the fasted group. The findings supported the view that hypoglycemia, directly or through the action of HGH, acts as the basic mechanism in the production of active endogenous lipoprotein lipase, and in the release of free fatty acids in the immediate neonatal period.

Hayduk, K.; Dürr, F.; and Schollmeyer, P. (Dept. of Med., Univ. of Tübingen, Tübingen, Germany): DIABETIC COMA AND PANCREATITIS. Germ. Med. Mth. *13*:432-36, September 1968.

Verbatim summary. Four cases of diabetic coma and acute pancreatitis are reported. The interrelationships in the pathogenesis of the two disorders are discussed and attention is drawn to the diagnostic difficulties and therapeutic problems. Three of the four patients died.

Hellman, B.; and Lernmark, A. (Histological Dept., University of Umeå, Umeå, Sweden): EVIDENCE FOR AN INHIBITOR OF INSULIN RELEASE IN THE PANCREATIC ISLETS. Diabetologia *5*:22-24, 1969.

Verbatim summary. The release of insulin in vitro from isolated mouse islets was significantly inhibited in the presence of an islet protein extract equivalent to more than 100 times the normal serum level of insulin. The nature of the inhibitory islet substance remains unclear. The possibility that the blood circulation through the islets may be important for the local regulation of insulin release by reducing high levels of this hormone in the immediate surroundings of the β cells should be considered.

Hoffman, Daniel J.; and Whistler, Roy L. (Purdue Agricultural Exp. Station, Lafayette, Ind.): DIABETOGENIC ACTION OF 5-THIO-D-GLUCOPYRANOSE IN RATS. Biochemistry 7: 4479-83, December 1968.

5-Thio-D-glucopyranose (5TG) differs from D-glucopyranose by having sulfur in place of oxygen in the pyranose ring. When the compound was given intraperitoneally to rats in a dose of 50 mg./kg., there was a rapid rise in blood sugar to a level that was four to five times the normal concentration at two hours. Simultaneous administration of insulin prevented this hyperglycemic effect. Three hours after the administration of 5TG (without insulin) excretion of the compound in the urine resulted in a decline of blood glucose; administration of repeated doses of 5TG for six hours resulted in a correspondingly sustained hyperglycemia. After a single dose of 5TG approximately 97 per cent of the compound was recovered unaltered in the urine within twenty-four hours. 5TG strongly inhibited glucose uptake by rat diaphragm at a molar ratio of 5TG to glucose of 0.5. Glucose output by rat liver slices was enhanced by 5TG. 5TG was slowly phosphorylated by yeast hexokinase; under the conditions tested, 5TG did not appreciably inhibit glucose phosphorylation. Urinary excretion of catecholamines was increased by 5TG, and blood levels of free fatty acids were elevated. Effects on plasma insulin are not described. H. T. N.

Iberall, A.; Ehrenberg, M.; Cardon, S.; and Simenhoff, M. (Biophysics Lab., Gen. Technical Serv., Upper Darby, Pa. and Clin. Res. Center, Jefferson Med. Coll. and Med. Center, Philadelphia, Pa.): HIGH FREQUENCY BLOOD GLUCOSE OSCILLATIONS IN MAN. Metabolism *17*:1119-21, December 1968.

Oscillations in blood glucose determined by AutoAnalysis with variations in amplitude from 10 to 30 mg. per 100 ml. are described in postabsorptive man having mean blood glucose levels of 50 to 90 mg. per 100 ml. These oscillations are regarded as an example of the dynamic regulation in biological systems, previously denoted as homeokinesis. C.R.S.

Koji Nakagawa; Yoshihiko Horiuchi; and Keime Mashimo (Second Dept. of Med., Hokkaido Univ. Sch. of Med., Sapporo, Japan): RESPONSES OF PLASMA GROWTH HORMONE AND CORTICOSTEROIDS TO INSULIN AND ARGININE WITH OR WITHOUT PRIOR ADMINISTRATION OF DEXAMETHASONE. J. Clin. Endocr. *29*:35-40, January 1969.

Verbatim summary. With a single intravenous injection of 0.1 U./kg. body weight of insulin or a thirty-minute intravenous infusion of 0.5 gm./kg. body weight of arginine monochloride, plasma growth hormone (HGH) of healthy young men increased to 45.1 ± 7.52 (mean ± S.D.) ng./ml. and 36.6 ± 9.67 ng./ml., respectively. Plasma corticosteroids, on the other hand, increased by 9.0 ± 3.78 μg./100 ml. with insulin, and showed a gradual decline, which seemed to be a normal diurnal rhythm, with arginine. Administration of 9 mg./day of dexamethasone for two days suppressed the insulin-induced HGH release, but did not affect the arginine-induced HGH release. These data suggest that these two stimuli for HGH release exert their actions through different mechanisms.

Levin, B.; Burgess, E. Ann; and Mortimer, Patricia E. (Queen Elizabeth Hosp. for Children, and North Middlesex Hosp., London, England): GLYCOGEN STORAGE DISEASE TYPE IV, AMYLOPECTINOSIS. Arch. Dis Child. *43*:548-55, October 1968.

Type IV glycogen storage disease (amylopectinosis) is described in a male child who died at the age of nineteen months. Extensive clinical and laboratory examinations, including analyses of liver and leukocyte enzyme activities, were performed. A review of literature concerned with this and related disorders follows the case report. R.K.K.

Lloyd, June K. (Inst. of Child Health, Univ. of London, and Hosp. for Sick Children, London, England): DISORDERS OF THE SERUM LIPOPROTEINS. II: HIPERLIPOPROTEINAEMIC STATES. Arch. Dis. Child. *43*:505-15, October 1968.

The author reviews the various primary and secondary forms of lipid disturbances associated with elevated levels of circulating lipoproteins. R.K.K.

Loubatières, A.; Mariani M. M.; Ribes G.; de Malbosc H.; and Chapal J. EXPERIMENTAL STUDY ON GLIBENCLAMIDE (HB 419), A NEW, PARTICULARLY ACTIVE, HYPOGLYCAEMIC SULPHONAMIDE. I. BETACYTOTROPIC ACTION AND INSULIN SECRETION. Diabetologia 5:1-10, 1969.

Verbatim summary. Glybenclamide or HB 419 is a new, particularly active hypoglycemic sulfonylurea. In the normal conscious dog, HB 419 administered intravenously was 240 or 440 times more active than tolbutamide, depending on whether the dosage is expressed in grams or in moles. The hypoglycemic effect did not occur in the totally pancreatectomized dog. HB 419 stimulated insulin secretion. HB 419 administered intravenously in the anesthetized dog increased insulinemia in the pancreatico-duodenal vein for seven hours, which represents the duration of the experiment. After oral administration of 2 mg./kg. the increase of peripheral insulinemia persisted for twenty-four hours. Hyperinsulinemia was also found in the pancreatico-duodenal vein in the conscious dog, when a catheter was permanently inserted into the said vein. The direct insulin-secreting effect has been shown on the isolated, perfused rat pancreas in vitro. This drug also counteracted the inhibitory effect of diazoxide on insulin secretion both in vivo and in vitro. Furthermore, this drug potentiated the effects of insulin in the pancreatectomized dog.

Malaisse, W.; Malaisse-Lagae, F.; and King, S. (Lab. de Méd. Expér. et d'Anat. Patholo., Univ. Libre de Bruxelles, Bruxelles, Belgique): EFFECTS OF NEUTRAL RED AND IMIDAZOLE UPON INSULIN SECRETION. Diabetologia 4:370-74, 1968.

Verbatim summary. The present communication deals with the possible effect of glucagon released from the alpha cells upon insulin secretion induced by glucose in the adjacent beta cells. First, it has been shown that neutral red, a substance which is thought to cause glucagon release from the alpha cells, did not modify the rate of insulin secretion induced by glucose in pieces of rat pancreatic tissue. Secondly, glucose stimulated insulin secretion under conditions where imidazole, a substance known to activate the phosphodiesterase, completely abolished the stimulant effect of exogenous glucagon upon insulin secretion. It is concluded that glucagon is not necessarily involved in the stimulation of insulin secretion by glucose, and that the effect of locally released glucagon, if any, is only to enhance the stimulant action of glucose.

Patrick, R. S.; and Walker, F. (Univ. Dept. of Pathol., Royal Infirmary, Glasgow, Scotland): THE GLUCOSAMINE CONTENT OF HUMAN UMBILICAL CORD JELLY IN NORMAL AND DIABETIC PREGNANCY. Diabetologia 5:29-33, 1969.

Verbatim summary. Umbilical cords have been examined from twenty-one normal full-term pregnancies and from sixteen diabetic pregnancies. Cord thickness measured by planimetry of transverse sections was approximately twice as great in the diabetic compared with the normal material, but did not correspond closely with fetal size. The wet to dry weight ratio of 13.07 for diabetic cords was significantly greater than the figure of 9.73 for normal material. The amount of mucopolysaccharide as assessed by the measurement of glucosamine liberated by hydrolysis of Wharton's jelly was also significantly greater in diabetic cords, measuring 1.32 mg./gm. wet weight or 16.41 mg./gm. dry weight compared with the normal figures of 1.03 and 9.42 respectively.

Diabetic pregnancy is apparently associated with an increased production of mucopolysaccharide, which could account for water retention and increased thickness of the umbilical cord.

Senft, G.; Schultz, G.; Munske, K.; and Hoffmann, M. (Dept. of Pharmacol., Freie Universität, Berlin, W. Germany): EFFECTS OF GLUCOCORTICOIDS AND INSULIN ON 3',5'-AMP PHOSPHODIESTERASE ACTIVITY IN ADRENALECTOMIZED RATS. Diabetologia 4:330-35, 1968.

Verbatim summary. Glucocorticoids stimulate the rate of lipolysis which is reduced in adrenalectomized animals. This hormonal action is antagonized by insulin. The antilipolytic action of insulin appears to be mediated by a reduced intracellular concentration of 3',5'-AMP. This reduction can partly be attributed to an insulin-induced acceleration of 3',5'-AMP degradation. It is shown that the stimulatory influence of glucocorticoids on lipolysis is due to a reduction of 3',5'-AMP phosphodiesterase (PDE) activity, which is increased by adrenalectomy. PDE activity was also increased in liver, skeletal muscle and kidney of adrenalectomized rats; treatment with a glucocorticoid prevented this increase. In vitro, PDE purified from beef heart was inhibited by glucocorticoids in high concentrations ($K_i = 1.1 \cdot 10^{-3}$ M. for 6 α-methylprednisolone hemisuccinate, $K_i = 1.6 \cdot 10^{-3}$ M. for prednisolone succinate). In vivo, the glucocorticoid-induced decrease of PDE activity (with retarded onset as shown in liver), may essentially be attributed to a decreased enzyme synthesis. Studies on the interaction of insulin and glucocorticoids on PDE activity were performed in the liver. In adrenalectomized, alloxan diabetic rats insulin stimulated PDE activity suppressed by treatment with a glucocorticoid, unsuppressed PDE activity was not increased by insulin. In contrast, the action of glucocorticoids on PDE activity was independent of the presence or the effectiveness of insulin.

Tchobroutsky, G.; Rosselin, G.; Assan, R.; and Derot, M. (Clinique du Diabète sucré et des Maladies de la Nutrition Groupe de Recherche U. 55 de l'Institut National de la Santé et de la Recherche Médicale, Hôtel-Dieu, Paris, France): GLUCOSE INTOLERANCE IN URAEMIA. Diabetologia 5:25-28, 1969.

Verbatim summary. This study confirms our first results showing large and prolonged insulin secretion in patients with azotemia and glucose intolerance. It shows that the pattern of growth hormone and glucagon secretions was not modified in these well-nourished patients with chronic renal diseases and hyperazotemia: the fasting values were in the normal range and the response during a five-hour glucose tolerance test was normal, except in one man with Fabry's disease, in whom a very large increase in plasma growth hormone was observed at the beginning of the GTT when the blood glucose increased. There was no increase in plasma HGH during the intravenous glucose tolerance test of sixty minutes. Plasma glucagon values were normal. This study done on eleven subjects shows that the diminished tolerance to glucose observed in azotemic patients in presence of a large and prolonged insulin secretion cannot be related to abnormalities in growth hormone or glucagon secretion.