

# ABSTRACTS

*Albrink, Margaret J.; and Meigs, J. Wister* (Dept. of Med., W. Va. Univ. Sch. of Med., Morgantown, W. Va.; and Dept. of Epidemiology and Public Health, Yale Univ. Sch. Med., New Haven, Conn.): INTERRELATIONSHIP BETWEEN SKINFOLD THICKNESS, SERUM LIPIDS AND BLOOD SUGAR IN NORMAL MEN. *Amer. J. Clin. Nutr.* 15:255-61, November 1964.

Two groups of apparently healthy male factory workers, 419 in total, were studied with measurements of serum lipids, serum sugar, and skinfold thickness at four different sites. They were judged healthy by negative history for vascular disease, normal physical examination and electrocardiogram. Urinalysis revealed no sugar. Somatic index (Burkhardt's or ponderal index) and relative weight (ratio of actual to standard weight) were calculated. The age range was twenty-five to sixty-nine years and history of weight gain was obtained from old employment records.

A significant correlation was found between triglyceride concentration and weight gain. Relative weight showed a highly significant correlation with triglyceride levels and a slight but significant correlation with cholesterol.

A significant correlation was found between skinfold thickness and other measures of fatness with serum triglyceride, but not cholesterol concentration. The correlation was greatest for measurements of scapular and costal skinfolds, which appeared to reflect weight gain. Forearm skinfold thickness did not correlate with weight gain during life and was not significantly correlated with increased triglyceride concentrations.

The men were divided into four groups based on forearm skinfold thickness—1.5 to 3.9, 4.0 to 4.9, 5.0 to 5.9, and greater than 6.0 mm. In those with slender forearms (less than 4.0 mm. skinfold thickness) triglyceride concentration increased as abdominal skinfold thickness increased. In those with fat forearms (greater than 6.0 mm.) no significant increase in triglyceride concentration occurred with increasing abdominal skinfold thickness.

Evidence is presented for the hypothesis of two types of obesity in man: (1) hereditary, or acquired very early in life, associated with adiposity of the extremities as well as trunk, and (2) acquired, associated with adiposity largely of the trunk, and not of the extremities. The latter is associated with a significant increase in triglyceride levels.

In 124 men, higher fasting serum sugar levels, although in the normal range, were slightly, but significantly correlated with increased triglyceride concentration. It is suggested that hypertriglyceridemia and impaired carbohydrate tolerance result from overloading existing adipose tissue cells and that the metabolic error is related. R.F.B.

*Arnould, Yvette; Bellens, Roger; Conard, Victor; Franckson, J. R. Marcel; and Mainguet, Paul* (Lab. of Exp. Med., University of Brussels, Brussels, Belgium): INFLUENCE OF THE INTESTINAL ABSORPTION OF GLUCOSE ON THE MAJOR COMPONENTS OF THE GLYCOREGULATION IN ANESTHETIZED DOGS. *Metabolism* 14:166-85, February 1965.

Simultaneous measurements were performed of intestinal absorption of glucose, hepatic storage, tissue utilization of glucose and changes in fat pad assayable serum insulin-like ac-

tivity (ILA). The subjects were anesthetized dogs during and after an intraduodenal infusion of glucose. The absorption rate of glucose varied from 0.5 to 1.6 gm. per kilogram per hour. The transfer of glucose to portal blood represents 107 to 57 per cent of the absorbed amount. The hepatic glucose output stops during the absorption period, the liver storing from 20 to 70 per cent of the glucose transferred to the portal blood. The serum ILA showed two successive increases: the first at the end of glucose infusion, the second after normalization of glycemia when the liver resumes its glucose secretion. Glucose utilization measured as C-14 disappearance rate is increased during the absorption period at which time no precise relationship was noted between portal and systemic glucose concentrations. The magnitude of hepatic glucose storage associated with portal hyperglycemia is enhanced by increased serum ILA. However, the pancreatic response appears to be independent of the level of systemic blood glucose. C.R.S.

*Barnard, Donald M.* (Dept. of Intern. Med., Fargo Clinic and St. Luke's Hosp., Fargo, N.D.): THE SECONDARY HYPOGLYCEMIA OF DIABETES MELLITUS. *Journal Lancet* 84:401-406, November 1964.

The author expresses the view that the two most common causes of spontaneous hypoglycemia probably are functional hyperinsulinism (functional hypoglycemia) and the secondary hypoglycemia (stimulative hypoglycemia) associated with early or mild diabetes. The two forms of hypoglycemia may be differentiated by a five-hour glucose tolerance test performed upon ambulatory individuals prepared for at least three days with a daily carbohydrate intake of 300 gm. The hypoglycemia of early diabetes is marked by (1) a peak value in excess of 160, (2) a plateau-type curve with a two-hour value above normal, and (3) the development of hypoglycemia, usually with symptoms, at three to five hours in contrast to functional hypoglycemia which is characterized by (1) a peak not over 140, (2) a return to fasting level by two hours, and (3) the occurrence of hypoglycemia, usually with symptoms, in two to four hours. Yalow and Berson's study by immunoassay of the plasma insulin content in early diabetes substantiated Conn, Seltzer, and Fajan's hypothesis that the above-described glucose tolerance curve resulted from a delayed mobilization of insulin.

The author reports his clinical experience with fourteen cases of secondary hypoglycemia associated with early diabetes mellitus, all diagnosed initially by glucose tolerance tests, with twelve presenting a history of hypoglycemic symptoms which were reproduced during the tolerance test, and with none exhibiting the classic symptoms of diabetes. L.S.S.

*Bauer, Marjorie Frantz; Hirsch, Paul; Bullock, Weldon K.; and Abdul-Haj, S. K.* (Dept. of Med., Univ. of Southern Calif., Div. of Derm.; Dept. of Path., Univ. of Southern Calif., and L.A. Cy. Gen. Hosp., Los Angeles, Calif.): NECROBIOSIS LIPOIDICA DIABETICORUM: A CUTANEOUS MANIFESTATION OF DIABETIC MICROANGIOPATHY. *Arch. Derm.* 90:558-66,

December 1964.

*Verbatim summary:* In recent years, histopathologic evidence has provided a basis for accepting the diagnosis of a diabetic state in the absence of manifest abnormal carbohydrate metabolism. Histochemical technics have been applied to ten cases of necrobiosis lipoidica diabetorum (NLD) and ten normal skins. Photomicrographs presented show the vessel changes believed to be characteristic of diabetic microangiopathy. This study suggests that a substance with the histochemical characteristics of a glycoprotein is deposited not only in vessel walls, but between the collagen bundles of the dermis in NLD. These findings strengthen the possibility that the diagnosis of NLD can be made even in the absence of abnormal glucose tolerance, and support the premise that it is a part of the diabetic syndrome. W.R.K.

*Chanmugam, Devendranathan; and Frumin, Abraham M.* (Dept. of Labs., Albert Einstein Med. Center, Southern Division; and Woman's Med. College of Pa., Philadelphia, Pa.): ABNORMAL ORAL GLUCOSE TOLERANCE RESPONSE IN ERYTHROCYTE GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY. *New Eng. J. Med.* 271:1202-04, Dec. 3, 1964.

An abnormal response to the oral glucose tolerance test in adults deficient in erythrocyte glucose-6-phosphate dehydrogenase was demonstrated by these authors. The responses varied from frankly diabetic curves to an abnormal cortisone-glucose tolerance test. The response to intravenously administered tolbutamide was similar to that observed in patients with pancreatic diabetes mellitus. A survey of twenty-five Negro diabetic patients for glucose-6-phosphate dehydrogenase deficiency revealed no increased incidence of this defect in the diabetic clinic patients. B.R.B.

*Colle, Eleanor; and Ulstrom, Robert A.* (Dept. Pediat., Univ. Minn. Med. Sch., Minneapolis, Minn.): KETOTIC HYPOGLYCEMIA. *J. Pediat.* 64:632-51, May 1964.

The authors report studies on eight children suffering from periodic episodes of clinical hypoglycemia. Between such episodes the children had long periods during which the blood sugar was normal and general health was good. Feeding a low caloric ketogenic diet to these children caused similar hypoglycemia. It is postulated that the pathologic mechanism was failure of adaptation to a fat-burning economy. J.M.P.

*Cotton, Ernest K.; and Fahlberg, Vera I.* (Dept. Pediat., Univ. of Colorado Sch. Med., Denver, Colo.): HYPOGLYCEMIA WITH SALICYLATE POISONING. *Am. J. Dis. Child* 108:171-73, August 1964.

Two children with salicylism and neurological signs are described. Both had profound hypoglycemia, and the neurological signs disappeared after administration of intravenous glucose. Some possible explanations for the occurrence of this condition are discussed. J.M.P.

*Cunningham, George C., Jr.* (Bruce Lyon Memorial Res. Lab., Child. Hosp. of the East Bay, Oakland, Calif.): TOLBUTAMIDE TOLERANCE IN HYPOGLYCEMIC CHILDREN. *Amer. J. Dis. Child.* 107:417-23, April 1964.

The tolbutamide tolerance test has been used to distinguish between hypoglycemia due to pancreatic adenomas and "functional" hypoglycemia. The adenoma patient is said to have a greater fall in blood sugar and a slower return to normal. Three children are described who had hypoglycemia and whose

tolbutamide tolerance tests were similar to those seen in adults with insulinomas. Surgical exploration of these children failed to demonstrate such tumors. Caution is urged in performing and interpreting this test in children on the basis of available evidence. J.M.P.

*Etzwiler, Donell D.* (Dept. of Pediat., St. Louis Park Med. Center, Minneapolis, Minn.): INCIDENCE OF URINARY-TRACT INFECTIONS AMONG JUVENILE DIABETICS. *JAMA.* 191:81-83, Jan. 11, 1965.

Urinary tract studies were carried out among 170 juvenile diabetic individuals, six to twenty years of age, attending a summer camp for diabetic children. Quantitative urine cultures and routine urinalyses were carried out. Initial midstream specimens collected for most part without supervision showed growth of more than 1,000 colonies per milliliter in fifty-five patients (eight boys and forty-two girls) but repetition under supervision and, in some, catheterized specimens, found confirmation in only one girl. Proteinuria was found in eight specimens, confirmed in only five by repetition. This study indicates that infection of the urinary tract as determined by properly supervised urine culture is rare in juvenile diabetes in its earlier stages. S.B.B.

*Frantz, Andrew G.; and Rabkin, Mitchell T.* (Depts. of Med., Mass. Gen. Hosp., and Harvard Med. Sch., Boston, Mass.): HUMAN GROWTH HORMONE: CLINICAL MEASUREMENT, RESPONSE TO HYPOGLYCEMIA AND SUPPRESSION BY CORTICOSTEROIDS. *New Eng. J. Med.* 271:1375-81, Dec. 31, 1964.

An insulin tolerance test coupled with measurements of blood glucose and growth hormone levels was found by the authors to be capable of differentiating the normal patient from the patient with endogenous or exogenous steroid excess and also from the patient with hypopituitarism. In normal subjects, the standard insulin tolerance test caused an average blood glucose drop to 34 per cent of resting value and a mean rise in growth hormone to 45.2 m $\mu$ g./ml. at one hour with a total range of 24-70 m $\mu$ g./ml. No response was observed in five hypopituitary subjects. Patients receiving more than 60 mg. of cortisol equivalent per day showed a mean plasma rise of growth hormone to 6.7 m $\mu$ g./ml. and patients receiving 26 mg. of cortisol equivalent per day showed a mean rise to 16.6 m $\mu$ g./ml. one hour after intravenous injection of the insulin. Comparable levels of hypoglycemia were produced in both the normals and steroid-treated patients. Growth hormone levels in normal resting fasting patients were found to be below 3 m $\mu$ g./ml. The others postulated that failure of growth in children treated with large doses of corticosteroids might be in part due to diminished growth hormone secretion. B.R.B.

*Hainline, Adrian, Jr.; and Keller, Dan F.* (Dept. of Clin. Path., Cleveland Clin., Cleveland, Ohio): AN EVALUATION OF THE FASTING BLOOD-GLUCOSE LEVEL AS AN INDEX OF ABNORMAL CARBOHYDRATE TOLERANCE. *Cleveland Clin. Quart.* 31:209-12, October 1964.

The authors compare fasting blood sugar levels with oral glucose tolerance tests as indices of diminished carbohydrate tolerance in 1,057 patients. Since 51 per cent of subjects with abnormal glucose tolerance tests had fasting blood sugar levels less than 91 mg. per cent by the ferricyanide reduction method, it was concluded that the fasting sugar level is un-

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reliable as a screening test for alterations in carbohydrate tolerance. O.V.S.

*Horwitz, Francis; Alp, Haluk; and Recant, Lillian* (Nutr. Res. Lab., Dept. of Preventive Med., Washington Univ. School of Med., St. Louis, Mo.): OBSERVATIONS ON CATIONIC EXCHANGE RESINS IN RELATION TO INSULIN BINDING. *J. Lab. Clin. Med.* 64:942-47, December 1964.

A study was designed to determine the physical state of insulin in the rat pancreas. Homogenized pancreases from 200-gm. rats were stirred with Dowex 50-X2 and Dowex 50-X8 Na + cycle resins. The supernatant phase of this mixture was considered to represent "free" insulin and the remainder "complexed" insulin. After separation, the fractions were bioassayed for insulin-like activity using the rat adipose tissue method of Martin and Renold. A companion study compared the binding of crystalline insulin I-131 to Dowex 50-X2 and 50-X8 resins. The results of this approach confirmed the presence of a fraction of insulin in rat pancreas which binds to Dowex 50-X2 Na + cycle resins but not to Dowex 50-X8. However, it was also found that free insulin I-131 added to pancreas homogenates behaves in a similar fashion. Accordingly it must be presumed that factors other than the charge on the insulin molecule may be involved in the binding process with Dowex 50-X2 resins. As a result, studies of bound and free insulin which use these resins should be subject to careful evaluation. T.G.S.

*Jordan, Paul H., Jr.; and Quintana, Rodrigo* (Depts. of Surgery, Univ. of Florida Med. Center, Gainesville, Fla., and Baylor Univ. College of Medicine, Houston, Tex.): INSULIN INHIBITION OF GASTRIN-STIMULATED GASTRIC SECRETION. *Gastroenterology* 47:617-25, December 1964.

Intravenous insulin (1 to 15 U.) was given to dogs fitted with denervated or vagally innervated gastric pouches. Secretion due to gastrin, mechanical or chemical stimulation of the stomach was inhibited by insulin hypoglycemia. Glucose infusion blocked the effect, which related quantitatively to changes in blood glucose, and could be produced by a sudden reduction of blood glucose from hyperglycemic to normoglycemic levels. It was concluded that insulin hypoglycemia inhibited the stimulation of parietal cells by gastrin. A.R.C., JR.

*Kaufman, Mildred* (Diabetes and Arthritis Prog., Div. of Chronic Dis., U.S. Public Health Serv., Washington, D.C.): PROGRAMMED INSTRUCTION MATERIALS ON DIABETES. *J. Amer. Diet. Assn.* 46:36-38, January 1965.

In view of the rising number of persons with diabetes and the increasing demands for patient education made upon professional time, further use of the branching technic of program teaching and of an automated teaching device is proposed. R.F.B.

*Kelin, M.; and Frost, H. M.* (Henry Ford Hosp., Detroit, Mich.): CORTICAL AREA OF DIABETIC RIB. *Henry Ford Hosp. Med. Bull.* 12:547-55, December 1964.

A pathological study was carried out to determine the validity of a widely held belief that there is an increased prevalence of osteoporosis in patients with diabetes mellitus. Of specimens taken at autopsy or thoracotomy the mean cross-sectional area of rib samples of forty diabetic patients was compared with that of 139 normal subjects. The authors found less loss of bone in diabetic subjects than anticipated. They

concluded that osteoporosis is probably not increased in severity or in prevalence in diabetics as compared with normal controls. J.A.G.

*Keller, Dan F.; and Hainline, Adrian, Jr.* (Dept. of Clin. Path. Cleveland Clinic, Cleveland, Ohio): THE GLUCOSE TOLERANCE TEST: APPRAISAL OF CRITERIA FOR INTERPRETATION BASED ON LABORATORY RESULTS. *Cleveland Clin. Quart.* 31:75, April 1964.

The results of 630 standard oral glucose tolerance tests are evaluated. Normal fasting blood sugar levels ranged between 65 and 105 mg. per 100 ml. A return to levels less than 110 mg. per 100 ml. within two hours was judged important in distinguishing between normal and abnormal tolerance for carbohydrate. O.V.S.

*Loutfi, A. H.; Shabbender, S.; and Abdine, F. H.* (Pediatric Surgical Dept., Kasr el Aini Children's Hosp., Cairo Univ. U.A.R.): HYPOGLYCEMIA WITH WILMS' TUMOR. *Arch. Dis Child.* 39:197-203, April 1964.

The occurrence of hypoglycemia in extrapancreatic tumors usually of the malignant mesodermal variety, is well documented. The authors state that all the reported cases have been in adults, and report on a five-year-old child with an abdominal mass, voracious appetite and episodes of unconsciousness found to be suffering from hypoglycemic episodes. Hypoglycemia did not recur following surgery. J.M.P.

*Lukens, F. D. W.* (George S. Cox Medical Res. Inst., Univ. of Pennsylvania, Philadelphia, Pa.): THE REDISCOVERY OF REGULAR INSULIN. *New Eng. J. Med.* 272:130-37, Jan. 21 1965.

There is a delayed and frequently an inadequate secretion of insulin in the diabetic patient, following the administration of glucose. Although intermediate acting and long-acting insulin as well as some of the oral hypoglycemic agents normalize the fasting blood sugar, they do not prevent a postprandial rise in blood sugar nor do they cause a normal decrease in nonesterified fatty acids following glucose administration. The addition of Regular Insulin to the regimen can prevent the postprandial hyperglycemia and also restore the normal decrease in nonesterified fatty acids produced by glucose. In addition there is some suggestion from the reports of Lawrence Bloch and Korp, Danowski and Wilson, Root and Marble that patients treated with Regular Insulin may have fewer diabetic complications. The authors suggest that a greater awareness of the role of Regular Insulin in the treatment of diabetes mellitus ought to be kept in mind.

*Comment:* Dr. Somogyi has long called attention to the fact that the intelligent use of Regular Insulin may be the treatment of choice in the brittle diabetic. Subsequently Bollinger et al. have demonstrated the greater effectiveness of Regular Insulin in the patient with high insulin antibody titers. B.R.B.

*Mills, I. H.; Bamforth, J.; Hindle, W.; and Goadby, H. K.* (Dept. Med., St. Thomas' Hosp., London, England): THE CONTROL OF SODIUM AND ALDOSTERONE METABOLISM IN PATIENTS WITH DIABETES AFTER HYPOPHYSECTOMY. *J. Endocr.* 28:iv-v, February 1964.

*Verbatim summary:* When a group of patients with diabetic retinopathy were hypophysectomized and then given replacement doses of cortisone, several developed attacks of

postural hypotension. Three male patients between ages forty-two and fifty-five years were studied while on a low sodium diet during the second year after hypophysectomy. All three had a normal blood pressure. One had no postural syncope and came into sodium balance on the sixth day of a 10 mEq./L. per day sodium diet. His aldosterone excretion rose from 3.8 to 8.8  $\mu$ g per day during this period. Two suffered from postural syncope, and did not come into sodium balance within eleven to fifteen days on a low sodium diet. Aldosterone excretion remained relatively low in both. The individuals with hypotensive attacks were given 0.1 mg. of fluorocortisone per day and remained free of syncopal attacks during a subsequent year of observation. The findings suggest that, in some patients with diabetes mellitus, loss of the pituitary is associated with an impaired control of aldosterone secretion and decreased ability to conserve sodium when on a low sodium diet. H.T.N.

*Phair, John P.; Bondy, Philip K.; and Abelson, Denis M.* (Dept. of Intern. Med., Yale Univ. Sch. of Med., and the Yale-New Haven Med. Center, New Haven 11, Conn.): DIABETES MELLITUS, ADDISON'S DISEASE AND MYXEDEMA — REPORT OF TWO CASES. *J. Clin. Endocr.* 25:260-65, February 1965.

Report of two cases of multiglandular endocrine deficiency due to an apparently autoimmune disease with antibody formation against hormonal organs. Addison's disease and myxedema developed three and sixteen years respectively after the onset of diabetes. Antibodies directed against the adrenals were found in both cases, and in addition to that anti-thyroid antibodies were found in one and anti-parathyroid antibodies in the other patient, although the latter had no parathyroid deficiency at that time. In a sibling of one of the two patients, adrenal insufficiency preceded diabetes by fifteen years. O.V.S.

*Pote, William, W. H., Jr.; Anderson, Elmer, A.; and Hitman, Donald* (Turlock, Los Angeles, and Highland, Calif.): THE EFFECTS OF OSCILLATORY MOTION ON THE BLOOD SUGARS OF DIABETIC PATIENTS. *Med. Arts Sci.* 18:137-42, Fourth Quarter 1964.

Exercise is an integral part of the planned daily program of a diabetic patient. It is often associated with a decreased insulin requirement in the patient with chemically well-controlled diabetes. The physiological reason for this is not understood. The reported study was designed to observe the effects of oscillatory motion (as a possible form of exercise) on the blood glucose values of patients with diabetes.

The apparatus used for oscillatory motion consisted of a motor-driven platform oscillating 126 times per minute through an excursion of three fourths of an inch. Flat movable sections were attached to any of four sides of the bases of the motorized platform (forming a bed), allowing side-to-side or head-to-foot motion with the subject lying across or sitting on the platform. The patient was given sixty minutes of oscillation — fifteen in each of four positions: sitting or lying on the platform with side-to-side motion and sitting or lying on the platform with head-to-foot motion. Seven patients with diabetes were hospitalized for ten five-day periods and kept on their usual program of diet and insulin. No oscillatory motion was given for two days. On the third and fourth day one hour of oscillatory motion was given; on the fifth day, two hours.

One-hour and four-hour postprandial blood glucose determinations were made each day. Oscillation was used immediately after the one-hour postprandial blood glucose. The four-hour postprandial blood glucose was taken immediately before lunch or two hours after oscillation. Electrocardiograms were done at the beginning and end of the hospital study period. Twenty-three outpatients received the following tests after a complete history and physical examination: Electrocardiogram, complete blood count, routine urinalysis, cholesterol cephalin flocculation, thymol turbidity, albumin-globulin ratio, paper electrophoresis-lipoprotein pattern, BUN, and blood glucose. The short-term hospitalization study showed an improvement in blood glucose values during oscillation, but no definite conclusion could be made because of the short period, the small number of patients, and the probably more accurate dietary intake. The outpatient study shows downward changes in the blood glucose values of some of the patients regardless of which method of evaluation is used. Rigid criteria were purposely used in classifying the results. The significance of the lower values during the oscillation period cannot be fully determined. The data do not suggest that oscillation can replace diet, insulin, or tolbutamide but do suggest a possible auxiliary effect. W.R.K.

*Read, Charles H.* (Dept. of Pediat., Coll. of Med., State Univ. of Iowa, Iowa City, Iowa): MANAGEMENT OF DIABETES IN CHILDREN. *J. Lancet* 85:35-41, January 1965.

The author comprehensively surveys the management of juvenile diabetes, dealing with diet, insulin therapy, psychologic and emotional aspects, patient and parental education, and the acute complications of acidosis, infections, and intercurrent illness with nausea and vomiting.

It is pointed out that insulin acts predominantly or solely upon glucose, enhancing the rate of its intracellular entry and its passage through the hexose-monophosphate shunt, with the formation of TPNH, whereby lipogenesis results from four carbon intermediary metabolites which are diverted from production of ketone bodies and cholesterol. Advantage is taken of the fact that insulin directly acts only upon carbohydrate to simplify the dietary management of diabetes, with only the carbohydrate fraction of the diet being closely regulated. Effort is made by educational means to limit the fat in the diet to 35 per cent of the total calories and to promote the selection of foodstuffs with polyunsaturated fats.

Insulin regulation is based upon six daily fractional urinalyses for sugar with employment of combinations of either Protamine and Crystalline Insulin separately injected or of morning and evening NPH or Lente Insulin with supplemental Crystalline Insulin as needed to restrict twenty-four hour glycosuria to 10 per cent or less of the daily carbohydrate intake. Fractional blood sugar determinations are made before discharge of hospitalized patients to guard against unrecognized hypoglycemia. Patients and parents are instructed in revision downward or upward of insulin dosage, based upon daily performance of fractional urinalyses at home, so as to permit minimal glycosuria as a safeguard against reactions and to overcome heavy glycosuria to forestall acidosis and coma. In the management of acidosis, emphasis is placed upon adequate usage of Crystalline Insulin and the administration of hypotonic electrolyte solutions for fluid replacement, in recognition

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of the fact that in the development of ketoacidosis the loss of water exceeds that of electrolytes.

The main reason for hospitalization of the child with diabetes is to establish rapport among patient, parent and physician which will permit life-long adequate care of the disease and appropriate handling of emotional as well as medical problems. L.S.S.

*Renner, Ruth* (School of Household Ec., Univ. of Alberta, Edmonton, Alt., Canada): FACTORS AFFECTING THE UTILIZATION OF "CARBOHYDRATE-FREE" DIETS BY THE CHICK. I. LEVEL OF PROTEIN. *J. Nutr.* 84:322-26, December 1964.

Growing chicks were fed diets containing varying amounts of protein and substituting fat isocalorically for glucose. Carcasses were analyzed for protein, fat and moisture. Chicks were able to utilize large quantities of fat without impairment of growth or nitrogen retention. Carbohydrate requirements were met without diversion of amino acids from protein to carbohydrate synthesis. A.R.C., JR.

*Salans, Lester B.; and Reaven, Gerald M.* (Dept. of Med., Stanford University Sch. of Med., Palo Alto, Calif.): EFFECT OF ORAL HYPOGLYCEMIC AGENTS ON SERUM INSULIN-LIKE ACTIVITY OF PATIENTS WITH VARIOUS DEGREES OF CARBOHYDRATE INTOLERANCE. *Metabolism* 14:26-30, January 1965.

Blood glucose and insulin-like activity (ILA) were determined at fasting and three hours after an oral glucose load and before and after treatment with chlorpropamide and phenformin. The patients studied manifested varying degrees of decreased carbohydrate tolerance. The results were compared with the serum ILA derived from a control group using the rat epididymal fat pad assay. The administration of either chlorpropamide or phenformin resulted in a fall in both blood glucose and ILA, irrespective of the degree of carbohydrate intolerance. The concentrations of ILA in the patient group exceeded that of the control group despite the fall occurring after therapy. The decrease in ILA after both chlorpropamide and phenformin suggest that any method of lowering blood glucose may result in a decrease in insulin secretion by patients retaining their insulinogenic capacity. The sulfonylurea may accomplish this effect by liberating bound insulin from serum proteins increasing the amount of "free" insulin. The ability of phenformin to increase the tissue uptake of glucose results in a fall in ILA as blood glucose concentration decreases. C.R.S.

*Stone, Daniel B.* (Diabetic Service, Univ. of Iowa Coll. of Med., Univ. Hosp., Iowa City, Ia.): A RATIONAL APPROACH TO DIET AND DIABETES. *J. Amer. Diet. Ass.* 46:30-35, January 1965.

The history of diabetic diets is comprehensively reviewed. A plea is made for the avoidance of arbitrary diets applied to all patients. Instead, the diet should be fitted to the patient, and this requires more individuals skilled in dietary instruction, such as dietitians. R.F.B.

*Taton, Jan; Pometta, Daniel; Camerini-Davalos, Rafael; and Marble, Alexander* (Baker Clinic Res. Lab., Joslin Clinic, Boston, Mass.): GENETIC DETERMINISM TO DIABETES AND TOLERANCE TO GLUCOSE. *Lancet* 2:1360-62, Dec. 26, 1964.

In order to compare the incidence of diabetes in persons

with varying genetic likelihood of diabetes, oral glucose tolerance tests (OGTT), oral cortisone glucose tolerance tests (CGTT) and rapid intravenous glucose tolerance tests (IVGTT) were done in (A) eighty-three subjects in whom both parents or a twin were diabetic, (B) fifty-one subjects with a strong family history of diabetes, and (C) 111 subjects with no family history of diabetes. Fasting blood sugars were no different in groups A, B, or C. But after oral glucose loading, values at 60, 90, and 120 min. were statistically higher in groups A and B than in C. No group differences were found in the borderline subjects given CGTT. The K value of the IVGTT was significantly less in groups A and B than in group C. In group A, 35 per cent of the OGTT and 16 per cent of the IVGTT were abnormal. With the IVGTT mean glucose disappearance rates were 1.65 in group A, 1.71 in group B, and 2.28 in group C. The oral glucose tolerance test appears to be more sensitive than the intravenous for detecting early diabetes in genetically predisposed individuals. T.G.S.

*Weismann, Rodger E.; and Johnson, May* (Dept. of Surg., Mary Hitchcock Memorial Hosp. and Dartmouth Med. Sch., Hanover, N.H.): ISCHEMIC ULCERS OF THE LEG. *Surg. Clin. N. Amer.* 43:1263, October 1963.

Thirty-one cases with single or multiple ulcerating lesions believed ischemic of the leg, ankle or proximal foot, observed from 1957 through 1961 in eleven males and twenty females with respective average ages of fifty-four and seventy-two years are reported. Characteristically, the ulcers were shallow, "punched-out," and tender, were usually 3 cm. in diameter or less, often with a gray membrane over the base, and were surrounded by a rim of blue or purple skin representing infarcted tissue of dubious viability. The patient sought a pain-relieving, dependent position, often exhibited edema of the foot, and in twenty-five of the thirty-one cases had the chief complaint of relentless, burning pain. Thirteen patients had a history of claudication; seven, thrombophlebitis; eleven, known varicosities; four a previous healed ulcer; and ten, previous surgery for vascular problems. Diabetes was present in nine patients; hypertension in thirteen; and severe rheumatoid arthritis in one.

The ulcer was located on the antero-lateral leg in nineteen patients, on the medial leg in three, on the heel in five and on the proximal foot in four. Thirteen patients (40 per cent) had normal pedal pulses; two had no femoral pulses; eleven had only femoral pulses and five had popliteal pulses.

Two patients obtained healing from medical therapy alone consisting of bedrest with the head of the bed elevated with cool saline or weak acetic acid compresses to the ulcer. Antibiotic ointments were rarely used; experience with enzymatic debridement was limited and inconclusive; vasodilating drugs produced no significant benefit. A combination of lumbar sympathectomy and grafting gave satisfactory results in at least 75 per cent of patients so treated, being most successful when the peripheral circulation was not seriously disturbed. Ischemic ulcers of the foot and heel presented a graver problem and were treated successfully in only 50 per cent. Five patients eventually required amputation after numerous salvage operations had failed. L.S.S.