

factor; here according to current concepts the pituitary growth hormone may play an important part. In the case of the "pre-diabetic fathers," the factor of inheritance must be the determining factor.

Jackson contends that when a woman gives a history of having had several large babies, the diagnosis of a pre-diabetic state is justified to such an extent that treatment should be started before glycosuria or hyperglycemia are known to exist. He believes that a pre-diabetic state must be present from the first pregnancy resulting in the delivery of a baby over ten pounds in weight to the time at which active diabetes is demonstrable. Critical students of the problem will find it difficult to accept these ideas as completely valid.

The whole concept of the pre-diabetic state is an intriguing one and may well prove of importance in advancing the knowledge regarding the etiology of human diabetes. One might ask what must be the evidences of diabetes before the diagnosis can be made. We need not wait for cardinal symptoms before we are justified in considering diabetes to be present. Is the condition certain to be present if the blood sugar two or three hours after eating is abnormally high even to a slight degree? If this is true, then diabetes exists if the blood glucose is consistently elevated in the absence of unusual endocrine or hepatic disease. Taken in this light, diabetes then varies only in the degree of mildness or severity and pre-diabetes does not exist unless it can be predicted when no measurable evidence of it is present by available chemical means.

The practical importance of the problem is concerned with the advantage to the patient of knowing of the existence of mild diabetes or the pre-diabetic state. This is a matter which concerns all interested in diabetes detection. One can agree with Jackson that it is of value in that it at least gives the physician the opportunity of prescribing a diet limiting the carbohydrate, and, if necessary, the caloric intake. The benefit which may come from this policy over a long period of years will have to be evaluated by comparison of the experience of those who do not change in dietary habits.

A point of immediate and practical value, which is emphasized by the author, is that the birth of abnormally large children calls for a careful evaluation of carbohydrate tolerance in the mother. She should have attention to the matter at the time and at regular intervals for the rest of her life.

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¹ Jackson, W. P. U.: Studies in Pre-diabetes. Brit. M. J. September 27, 1952, p. 690-696.

GROWTH OF THE ISLETS OF LANGERHANS

Ever since diabetes was produced by pancreatectomy, efforts have been made to learn more of the behavior of the islets of Langerhans. At present the principal methods for studying the islets are: 1) Counting the islands in serial or frequent microscopic section; 2) the qualitative appraisal of their size and condition on microscopic examination; 3) estimation of the islet volume (or weight); 4) determination of the insulin content of the pancreas; 5) estimation of insulin secretion by grafting the pancreatic vein of a test animal to the circulation of a depancreatized animal. One of the most useful of these procedures has been the measurement of islet volume under various experimental conditions. The article by Kinash and others, published in this issue of DIABETES, is a valuable addition to their previous work. It will remind physicians of a number of facts which they cannot see in their patients but which they might like to know.

The capacity of the islet to grow differs greatly in different species and is less in adult than in young animals. In rats, which have a great capacity for islet growth, the metabolic load is an important influence. This is shown by the use of pair-fed controls and by the authors' critical discussion of the mechanisms by which pituitary extracts may act. Since the diabetic cannot respond to an ample food intake with the normal secretion of insulin, this modern study confirms the value of dietary restriction in diabetes mellitus. Finally, these methods have been applied to man. Thus, Ogilvie¹ and Wrenshall² have found that both the islet volume and the extractable insulin of the pancreas *per unit of body weight* decrease with age. It is more true than facetious to say that obesity is a weighty predisposing factor to diabetes, and one may suppose that this is in part due to the limited ability of the islets of the adult to grow adequately in response to this metabolic demand. In any case the information gained by these studies is not only of value at the moment but is an incentive to further clinical application of methods developed in the laboratory.

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¹ Ogilvie, R. F.: Quantitative estimation of pancreatic islet tissue, Quart. J. Med. 6:287-300, 1937.

² Wrenshall, G. A.; Bogoch, A.; and Ritchie, R. C.: Extractable insulin of pancreas, Diabetes 1:87-107, 1952.