A MENACE IN THE LOW PROTEIN DIET *

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Since the investigation of Schamberg¹ and his collaborators on protein metabolism in psoriasis and the distinctly beneficial results obtained by them in this disease by restricting the nitrogenous intake, it has become more or less a routine with a great many dermatologists to place patients with psoriasis on a low protein diet. The use of such a diet has not been confined to psoriasis; it is being advised in a number of other dermatoses—dermatitis, to instance one.

In reducing the protein intake, the caloric requirements are made up usually by that of carbohydrates and fats. Practically, the increase occurs most often in the carbohydrate components, since they are more agreeable to the majority of patients. A diet of this kind, rich in starches and sugars and poor in proteins, may be kept up for a long time, either by order of the physician or by the patient's own volition.

It is not my intention to discuss the value or uselessness of this diet; but owing to its widespread adoption, it becomes of importance to call attention to a possible danger, and thus, to a contraindication to its use, in certain patients.

Diabetes is recognized universally as a contraindication to a diet rich in carbohydrates; but it is not so generally realized that there exists a detectable prediabetic state in which a diet of this type sooner or later leads to permanent glycosuria. To continue a prediabetic patient on a diet composed of large amounts of carbohydrates is tantamount to condemning that person to diabetes. Two cases recently under observation exemplify these points.

REPORT OF CASES

CASE 1.—Miss B., aged 22, first seen May 6, 1920, had psoriasis which began six years ago. In June, 1917, she had an acute, generalized attack. At this time she was treated with fractional doses of roentgen ray and placed on a restricted protein diet. The eruption wholly disappeared, but recurred in April, 1920, a few patches presenting on the scalp, elbows and thorax. For two and one-half years she remained on the diet first prescribed, because she was told that it might prevent recurrence. Her diet consisted mainly of potatoes and bread, smaller quantities of coarse vegetables and a small piece of meat every other day.

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1. Schamberg, J. H.; Ringer, A. I.; Raiziss, G. W., and Kolmer, J. A.: Summary of Research Studies in Psoriasis, J. A. M. A. **63**:729 (Aug. 29) 1914.

She was overweight and flabby, with a pale, pasty complexion and puffiness about the eyes that suggested a diabetic habitus. There was complaint of polydipsia, polyuria and nocturia. A general physical examination was negative except for a persistent pulse rate of 100.

June 17, 1920: Urinalysis showed no sugar.

June 24, 1920: A glucose tolerance test gave the following result: blood sugar (before glucose), 0.142 per cent.; urine sugar, negative.

10 a. m.: Glucose, 100 gm., in 200 c.c. water.

	Percentage of Blood Sugar	Urine Sugar
10:30 a. m.....	0.344	Positive
11:00 a. m.....	0.300	Positive
12:00 "m.....	0.248	Negative
1:00 p. m.....	0.178	Negative
2:00 p. m.....	0.162	Negative

Marked nausea continued for twenty-four hours.

This test showed a prediabetic state of advanced grade. The appearance of glycosuria was particularly ominous and definitely pathologic. It was evident that a diet rich in carbohydrates was strictly contraindicated. The diet, therefore, was changed to conform to the findings, and the psoriasis treated with roentgen ray, under which it has cleared up except on the scalp.

July 8: Blood sugar, 0.140 per cent.; urine sugar, negative. She was still hyperglycemic, which if persistent, indicates the need of fast days.

This case exemplifies three important facts: (1) the inadvisability of instituting a diet rich in carbohydrates without previous knowledge of the patient's ability to take care of it; (2) that absence of glycosuria is not always an index of safety; and (3) that a glucose tolerance test may indicate a state of grave danger to the patient, which may be aggravated unwittingly by a rich carbohydrate diet, such as is usually instituted when psoriatic patients are placed on low protein intakes.

CASE 2.—Mr. E., aged 24, first seen June 8, 1920, had a widespread seborrheic dermatitis which had been present for many years. At present it was severe on the scalp, face, arms and thighs. There have been occasional remissions but never complete freedom. He had been treated by various means for years without avail. Two years ago he was placed on a low protein diet and had voluntarily continued it since. He subsisted principally on coarse vegetables and starchy foods. During the first year of this diet, he took no animal food; for the past twelve months he had eaten an occasional piece of beef or chicken.

In an endeavor to discover an etiologic factor, a glucose tolerance test was performed. The results were: blood sugar (before glucose), 0.093 per cent.; urine sugar, negative.

10:15 a. m.: Glucose, 100 gm., in 200 c.c. water.

	Percentage of Blood Sugar	Urine Sugar
10:45 a. m.....	0.264	Negative
11:15 a. m.....	0.188	Negative
12:15 p. m.....	0.176	Negative
1:15 p. m.....	0.166	Negative
2:15 p. m.....	0.162	Negative

He had no nausea.

Lowered glucose tolerance is well demonstrated in this test. Glycosuria did not occur, but the failure of the blood sugar to return to a normal figure inside of four hours is significant of lowered sugar assimilability. It can be assumed that this patient would be injured by a persistently high carbohydrate intake; perhaps eventually to a stage of pancreatic hypofunction leading to permanent glycosuria. Certainly the diet that had been advised for the seborrheic dermatitis was contraindicated in view of the potential diabetes elicited by the glucose tolerance test. He was, therefore, placed on a diet conforming to this finding.

REMARKS

The important point is the detection of the potential diabetes; when that has been ascertained the physician becomes master of the situation. Should he elect to continue a low protein diet, it is possible, in most cases, to achieve his purpose, and still maintain a carbohydrate and protein intake consonant with the conditions confronting him. By frequent blood sugar estimations, a record can be obtained, which will determine whether the campaign is to be maintained or abandoned. Prediabetic patients should be told of their condition, its control and dangers, so that they do not unknowingly adopt a diet which is fraught with danger to them.

The question whether a rich carbohydrate diet can, of itself, cause diabetes is still sub judice. Experimental evidence apparently shows that this disease can be produced only when a latent tendency toward it already exists. No amount of sugar feeding to normal animals causes diabetes in them; but animals which by operative procedures have been rendered latent diabetics, may develop the condition by overfeeding with saccharin substances. Allen² believes that the increase of diabetes in civilized peoples is due to the stirring up of a latent tendency by a combination in which mental stress and rich carbohydrate diet are the principal elements.

CONCLUSIONS

1. Most patients, on a low protein diet, receive an increased carbohydrate ration.

2. Allen, F. M.: Glycosuria and Diabetes, Cambridge, Harvard University Press, 1913, pp. 592 and 1062.

2. A diet rich in carbohydrates is contraindicated in patients who present a prediabetic condition.

3. Patients who have psoriasis or other dermatoses, in which a low protein diet is often resorted to, may also be prediabetics.

4. Therefore, before a special diet, low in protein and rich in carbohydrates, is instituted, the sugar tolerance of the patient should be ascertained.

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