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Thaddeus H. Joos

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LATE COMPLICATIONS IN JUVENILE DIABETES

THADDEUS H. JOOS, M.D.*

Since the introduction of Insulin in 1922, some 120 children with diabetes mellitus have been treated in the Pediatric Department at the Henry Ford Hospital. This paper deals with our experience in thirty-one of these patients followed ten or more years.

In general, our results are in agreement with those published by Walker (1), Post and Stickle (2), and Root, Sinden and Zanca (3). That is, the better the control, the fewer the complication, the most common of these being retinal hemorrhages and albuminuria, which were found in a sizable number of these patients.

COMPLICATIONS FOUND IN JUVENILE DIABETES IN FOUR SERIES

Table No. 1

	HFH	Walker	Post & Stickle	Root
Retinopathy	30 percent	46.6 percent	54 percent	56 percent
Cataracts	3 percent	14.6 percent		
Hypertension	3 percent	4.0 percent		36 percent
Albuminuria	30 percent	4.0 percent		26 percent
K.S.W.D.	7 percent			
Nephritis	9 percent			
Neuropathy	2 percent			

Of the thirty-one patients followed ten or more years, twenty exhibited at least one or a combination of several of the following changes: (1) Retinitis, (2) Albuminuria, (3) Cataracts, (4) Neuropathy, (5) Hypertension, and (6) Kimmelstiel-Wilson disease. Table two outlines the frequency.

TYPES OF COMPLICATIONS AND NUMBER OF LESIONS IN PATIENTS FOLLOWED TEN OR MORE YEARS

Table No. 2

Retinitis	Albuminuria	Cataracts	Neuropathy	Hypertension	KSWD	Nephrosis
10	10	1	1	1	2	3

The degree of each varied as to severity and physical disability, but one person died of Kimmelstiel-Wilson disease and another with bilateral cataracts had such extensive retinal hemorrhages that cataract removal was thought unwise.

When classifying control we used the number of times in coma and the positive Benedicts reaction of urines tested at home, as criteria. Table three illustrates this.

*Formerly Resident in Pediatrics.

At present with the U. S. Navy Medical Corps.

CLASSIFICATION OF CONTROL OF DIABETES

Table No. 3

	<u>Coma</u>	<u>Positive Benedicts Test on Urine</u>
Good	0	2 daily or less
Fair	1	2 daily or less
Fair to Poor	2 or 3	2 or 3 daily
Poor	4 or more	4 or more daily

In Table four the relationship between control and complications in the group can be seen.

CONTROL AND COMPLICATIONS

Table No. 4

	<u>Patients with Complications</u> <u>No. Patients</u>	<u>Patients without Complications</u> <u>No. Patients</u>
Control		
Poor	8	2
Fair to Poor	7	1
Fair	3	3
Good	2	5

There were six deaths recorded in the patients, five of whom died in our hospital and one in another institution. Coma claimed the lives of four, while pulmonary tuberculosis and Kimmelstiel-Wilson disease accounted for the other two.

DISCUSSION

The controversy between "free" and "controlled" diets we believe is swinging in favor of the controlled type of regime because of the increasing number of reports that control and complications are directly related^(4,5). Lichtenstein⁶, when writing on the "free diet" in childhood diabetes gives his results on the basis of 10 years experience. He states that the number of complications encountered were few. We must, however, remember that seldom do any of the vascular changes make themselves evident until the child has had the disease at least ten years⁷. Our average time for the development of any of these changes was eleven years and eight months after the initial diagnosis of diabetes was established.

We believe our management where a moderate amount of carbohydrate is given and two positive Benedicts tests daily are allowed to guard against insulin reactions, affords a good middle ground to follow. As pointed out by John⁸, when a person runs a positive Benedicts once a day we can assume that he is hyperglycemic about six hours out of 24. He goes on to say that a normal person with his post prandial hyperglycemia has high blood sugar levels approximately 25% of the time also.

With a diet in which the total calories are based on basal calories times 1.9 and with total calories from Protein 15%, Fat 50%, and Carbohydrates 35%, the child has a well balanced diet which is easily followed. Despite its relatively high fat content this diet had no ill effect on the blood cholesterol as determined in a limited number of our patients having the disease ten or more years. This diet provides the needed protein for sound continued growth, and on such a program all but a small number of our patients grew normally and remained well within the normals as given by Wetzel.⁸

CONCLUSIONS:

In the regulation of diabetes mellitus in children, control is of the utmost importance, since there is a steady accumulation of information showing that good control will lead to a lowered incidence of complications, especially retinopathy, hypertension, and albuminuria.

To obtain this control, a diet allowing a moderate amount of carbohydrate can be used with success. Such a diet has been used in the reported patients and may easily be prescribed as 15 percent of total calories from protein, 50 percent from fat and 35 percent from carbohydrate.

Doctor Nicholas G. Douvas kindly did the eye examinations and was of major assistance in this classification.

BIBLIOGRAPHY

1. Walker, G. L.: Diabetic retinopathy in young persons, *Tr. Am. Ophth. Soc.* 48:677, 1950.
2. Post, L. T., and Stickle, A. W., Jr.: Fundus changes in juvenile diabetics, *Tr. Am. Ophth. Soc.* 48:191, 1950.
3. Root, H. F., Sinden, R. H., and Zanca, R.: Factors in the rate of development of vascular lesions in the kidneys, retinae and peripheral vessels of the youthful diabetic, *Am. J. Digest. Dis.* 17:179, 1950.
4. Wilson, J. L., Root, H. F., and Marble, A.: Controlled versus free diet management of diabetes, *J. A. M. A.* 147:1526, 1951.
5. John, H. J.: Liberal regimen of treatment of diabetes, *Am. J. Med.* 5:537, 1948.
6. Lichtenstein, A.: Treatment of children's diabetes; ten years' experience without dietetic restrictions, *Acta Paediat.* 32:556, 1944-45.
7. Joslin, E. P., and Wilson, J. L.: Lessons for future treatment from 472 fatalities in diabetic children, *Brit. M. J.* 2:1293, 1950.
8. Wetzel, N. C.: Physical fitness in terms of physique, development and basal metabolism; with a guide to individual progress from infancy to maturity: A new method for evaluation, *J. A. M. A.* 116: 1187, 1941.