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FPG, fasting plasma glucose; HPLC, high-performance liquid chromatography; NIDDM, non-insulin-dependent diabetes mellitus; IDDM, insulin-dependent diabetes mellitus.

References

1. Shi K, Tahara Y, Noma Y, Yasukawa K, Shima K: The response of glycated albumin to blood glucose change in the circulation in streptozotocin-diabetic rats–comparison of the theoretical results with experimental data. *Diabetes Res Clin Prac* 17:153–60, 1992
2. MacDonald JM, Davis JE: Glycosylated hemoglobins and diabetes mellitus. *Human Pathology* 10:279–91, 1979
3. Beach KW: A theoretical model to predict the behavior of glycosylated hemoglobin levels. *J Thoer Biol* 81:547–61, 1979
4. Svačina Š, Hovorka R, Škrha J: Computer models of albumin and haemoglobin glycation. *Comput Methods Programs Biomed* 32:259–63, 1990
5. Mortensen HB, Vølund A, Christophersen C: Glucosylation of human haemoglobin A: dynamic variation in HbA_{1c} described by a biokinetic model. *Clin Chim Acta* 136: 75–81, 1984
6. Mortensen HB, Vølund A: Application of a biokinetic model for prediction and assessment of glycated haemoglobins in diabetic patients. *Scand J Clin Lab Invest* 48: 595–602, 1988
7. Goldstein DE, Oermann CM, Madsen RW, Mckenzie EM, Wiedmeyer HM, England JE, Little RR: Glycated hemoglobin kinetics: predicted and actual rates of change (Abstract). *Diabetes* 38 (Suppl. 1):116A, 1989
8. Goldstein DE, Little RR, Wiedmeyer HM, England JD, Rohlfing CL: Glycohemoglobin testing in diabetes mellitus: assay methods and clinical interpretation. *Cardiovascular Drug Rev*. In press

Thyroid Disease in Chinese Children With IDDM

The association of IDDM with autoimmune thyroid disease has been well documented, and the screening for thyroid disorder in children with IDDM is recommended (1–4). In a recent issue of *Diabetes Care*, Wong (5) reported an absence of thyroid disease in Chinese children with IDDM. The result is different from that of our previous report on the same topic (6). Now that we have more patients to testify to our previous results, we would like to share our experience in Taiwan.

We have followed 65 Chinese children with IDDM at the pediatric endocrine clinic of the National Taiwan University Hospital. All patients (21 boys and 44 girls) were born in Taiwan. Their mean age at diabetes onset was 7.2 yr (range 0.3–15.0 yr), and the mean duration of follow-up was 4.2 yr (range 0.1–14.3 yr). The diagnosis of IDDM was made according to NDDG criteria. Of our 65 patients, 50 (77%) have a history of ketoacidosis.

Autoantibodies to thyroid microsomal antigen were determined by hemagglutination assay (Fujirebio, Tokyo, Japan). Those patients found to have thyroid microsomal autoantibodies also had their thyroid function evaluated by the determination of serum thyroxine concentration and serum TSH concentration. Serum thyroxine concentration was measured by RIA (Daiich Radioisotope, Tokyo, Japan), and serum TSH concentration was measured by immunoradiometric assay (Baxter Healthcare, Cambridge, MA).

Thyroid microsomal autoantibodies were detected in 14 of 65 (22%) IDDM patients. No difference was noted between sex. Of the 14 patients with serological evidence of autoimmune thyroid disease, 1 (7%) had hyperthyroidism, and 1 (7%) had compensated hypothyroidism (elevated TSH with euthyroxinemia). They developed thyroid dysfunction 7 and 8 yr after the diagnosis of IDDM, respectively.

Our current data confirm our previous notion that there is no ethnic difference in the association of autoimmune thyroid disease and IDDM. In our experience, the recommendation that all IDDM patients be screened for thyroid autoantibodies and that those with positive results undergo annual thyroid function tests (1) is warranted, even in Chinese children with IDDM.

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IDDM, insulin-dependent diabetes mellitus; NDDG, National Diabetes Data Group; RIA, radioimmunoassay; TSH, thyroid-stimulating hormone.

References

1. Riley WJ, Maclaren NK, Lezotte DC, Spillar RP, Rosenbloom AL: Thyroid autoimmunity in insulin-dependent diabetes mellitus: the case for routine screening. *J Pediatr* 98:350–54, 1981
2. Riley WJ, Winer A, Goldstein D: Coincident presence of thyro-gastric autoimmunity at onset of type 1 (insulin-dependent) diabetes. *Diabetologia* 24:418–21, 1983
3. American Diabetes Association: Position statement: standards of medical care for patients with diabetes mellitus. *Diabetes Care* 12:365–68, 1989

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4. McKenna MJ, Herskowitz R, Wolfsdorf JI: Screening for thyroid disease in children with IDDM. *Diabetes Care* 13:801–803, 1990
5. Wong GWK: Absence of thyroid disease in Chinese children with IDDM. *Diabetes Care* 16:404–405, 1993
6. Tsai WY, Riley WJ, Lee JS, Tsai WS: Islet cell and other organ-specific autoantibodies in Chinese children with insulin-dependent diabetes mellitus. *J Formosan Med Assoc* 89:969–71, 1990

Autoimmune Thyroid Disease in Chinese Children With IDDM

I reported on a small series of Chinese children with IDDM, in a recent issue of *Diabetes Care*, which indicated no case of thyroid abnormality nor the presence of thyroid autoantibodies (1). This experience appeared to be different from Tsai et al.'s (2) group of IDDM patients.

The first question to answer is whether or not the 2 groups of patients are different. The mean age of onset and duration of follow–up were comparable. Tsai et al.'s (2) group of patients, however, has a female predominance (21 boys and 44 girls). It is well known that autoimmune thyroid disease is more common in females. Secondly, 50 of 65 (77%) patients have a history of ketoacidosis. In my series, only 6 of 26 (23%) patients presented with diabetic ketoacidosis at diagnosis. In addition, all the patients in my series are of southern Chinese origin. Considering all of these factors, I believe the 2 groups of patients do have some differences. Furthermore, it took more than 7 yr for the 2 patients in Tsai et al.'s (2) group to develop their thyroid dysfunction. The duration of IDDM may be a factor in the development of thyroid disease in children with IDDM.

The association of IDDM with thyroid disease has been well documented in the literature. In my series, the apparent differences between groups may be attributable to the lack of statistical power because sample size is relatively small. Since the publication of my previous report, I have recently diagnosed another case of IDDM, and this patient was found to have thyroid microsomal antibodies. Interestingly, this case was a 9-yr-old girl who presented with diabetic ketoacidosis at diagnosis.

From the data provided by Tsai et al. (2), it appears quite reasonable to screen all Chinese children with IDDM for the presence of thyroid autoantibodies. However, it should be emphasized that the majority of children with IDDM (~80–90%) do not develop any autoimmune thyroid diseases. Future research efforts, therefore, should be directed at finding the possible genetic or environmental factors which may play a role in the manifestation of autoimmune thyroid disease in children with IDDM.

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IDDM, Insulin-dependent diabetes mellitus.

References

1. Wong GWK: Absence of thyroid disease in Chinese children with IDDM. *Diabetes Care* 16:404–405, 1993
2. Tsai WY, Riley WJ, Lee JS, Tsai WS: Islet cell and other organ-specific autoantibodies in Chinese children with insulin-dependent diabetes mellitus. *J Formosan Med Assoc* 89:969–71, 1990

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