Normal Glucose Tolerance in Young Patients with Nonazotemic Chronic Glomerulonephritis

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Dear Sir,

The association of glucose intolerance with chronic renal failure is well known [1]. Kaneshige et al. [2] reported that nonazotemic patients with chronic glomerulonephritis also have a high prevalence of abnormal glucose tolerance. In order to study the mechanisms by which chronic glomerular disease without uremia can affect glucose homeostasis, we attempted to confirm the high prevalence of glucose intolerance in 9 patients (4 males and 5 females) with IgA nephritis (Berger's disease) and/or familial nephritis. Seven children (aged 10.5–16.5 years) and 2 parents (aged 34 and 43 years) were studied; they had been followed in the pediatric renal clinic for 3–12 years because of recurrent painless hematuria. Serum creatinine was $55.7 \pm 15.0 \mu\text{mol/l}$, $0.63 \pm 0.17 \text{ mg/dl}$ (mean $\pm$ SD) and BUN $3.5 \pm 0.9 \text{ mmol/l}$, $9.7 \pm 2.7 \text{ mg/dl}$. Serum sodium, potassium, calcium, phosphorus, complement C3 and urinary protein excretion were normal. A parent and one of her children underwent renal biopsy showing a picture compatible with IgA nephropathy. In the other patients the diagnosis of IgA nephropathy was made on clinical grounds (recurrent hematuria), with the exclusion of other possible causes. Subjects were not obese, normotensive and received no medication at the time of the study. Informed consent was obtained from the patients and their parents.

After an overnight fast, glucose (50%) was administered orally at a dose of 1.75 g/kg body weight (maximum 75 g). Venous blood samples were obtained at -15, -1, 30, 60, 90, 120, 150 and 180 min through an indwelling needle, kept patent with a normal saline infusion. Samples were analyzed for plasma glucose (Astra, Beckman, Fullerton, Calif., USA) and serum insulin, determined by radioimmunoassay. Glycosylated hemoglobin (Isolab Inc., Ohio, Ill., USA) was measured on basal samples.

Results of oral glucose tolerance testing are shown in table I. Glucose tolerance was normal by American Diabetes Association (ADA) criteria [3] in all subjects. Fasting and peak serum insulin levels 73.9 ± 24.4 and $755.2 \pm 208 \text{ pmol/l}$ (10.3 ± 3.4 and $105.3 \pm 29.0 \mu\text{U/ml}$); respectively, were also normal [4]. Glycosylated hemoglobin was $5.15\% \pm 0.8$ (normal range 3.5–7.5%). Our findings of normal oral glucose tolerance in 9 subjects with nonazotemic nephritis, most notably IgA nephropathy, contrast with those of Kaneshige et al. [2] who found impaired glucose tolerance in 45 of 62 cases of IgA nephropathy and in 17 of 21 cases of 'benign recurrent

hematuria'. In addition to genetic and dietary factors which distinguish our population from the Japanese pa-Table I. Oral glucose tolerance test results in 9 patients with nonazotemic chronic glomerulonephritis at various times (min) before and after the test

Time (min)

-15 -1 30 60 90 120 150 180

Plasma glucose, mmol/l

Mean 5.1 5.1 6.5 6.6 5.9 5.8 5.2 4.6

± SD 0.5 0.6 1.3 1.6 1.4 0.9 0.7 0.7

Plasma glucose, mg/dl

Mean 92.3 92.6 117.9 118.7 106.6 104.4 94.2 81.9

± SD 8.9 11.4 24.4 29.2 26.2 16.2 12.7 13.0

Glucose Tolerance in Nephritis

139

tients our patients were younger and most likely had a shorter duration of glomerular disease. We conclude that chronic glomerulonephritis in young, nonazotemic, Caucasian patients is not commonly associated with abnormal oral glucose tolerance.

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