Type-2 Diabetic Nephropathy in Japan. From Bench to Bedside
Contributions to Nephrology

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Type-2 Diabetic Nephropathy in Japan
From Bench to Bedside

Volume Editor

Yasuhiko Tomino  Tokyo

35 figures, 9 in color, and 18 tables, 2001
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Diabetic patients receiving medical treatment account for about one half of all diabetic patients in Japan. At present, it is estimated that about a million diabetic patients are not receiving examinations for early diagnosis of diabetic nephropathy. It is assumed that diabetic nephropathy in such patients is increasing and a considerable number of patients become progressive due to lack of treatment. A diabetic nephropathy eradication campaign on a national scale is urgently needed in Japan with the participation of the medical profession, health authorities and the general public.

Type-2 diabetic nephropathy is one of the major long-term microvascular complications occurring in nearly 40% of diabetic patients in Japan. The pathogenesis of diabetic nephropathy includes both metabolic and/or hemodynamic factors and renal hypertrophy (glomerular hypertension). Hyperglycemia is necessary, but not sufficient, for the initiation and progression of diabetic nephropathy. The toxicity of persistent hyperglycemia results from glucose overutilization and multiple secondary effects. Diabetic nephropathy is generally considered to alter the chemical composition of the glomerular basement membrane (GBM) and mesangium. Biochemical and immunochemical analyses have shown that the extracellular matrix (ECM) of the glomerular mesangium consists of type-IV collagen, laminin and fibronectin. At present, it is generally considered that the increases in ECM accumulation due to TGF-β activation might be related to glomerular sclerosis in diabetic nephropathy. It is necessary to determine the TGF-β production cascade such as DAG/PKC/MAPK in patients with diabetic nephropathy. Although large numbers of candidate genes in patients with diabetic nephropathy have been analyzed, the candidate genes related to initiation and progression are still obscure in patients with type-2 diabetic nephropathy.
The purposes of this book are: (1) to review our work on the genetic background, pathogenesis and treatment of type-2 diabetic nephropathy, and (2) to provide the most up-to-date findings on these subjects in Japan.

Yasuhiko Tomino