

instituted. Because some individuals with type 1 or type 2 DM have a decline in GFR in the absence of albuminuria, assessment should include a spot urinary albumin-to-creatinine ratio and an estimated GFR. The urine protein measurement by routine urinalysis does not detect low levels of albumin excretion. Screening for albuminuria should commence 5 years after the onset of type 1 DM and at the time of diagnosis of type 2 DM.

Type IV renal tubular acidosis (hyporeninemic hypoaldosteronism) may occur in type 1 or 2 DM. These individuals develop a propensity to hyperkalemia and acidemia, which may be exacerbated by medications (especially angiotensin-converting enzyme [ACE] inhibitors, angiotensin receptor blockers [ARBs], and mineralocorticoid receptor antagonists). Patients with DM are predisposed to radiocontrast-induced nephrotoxicity. Risk factors for radiocontrast-induced nephrotoxicity are preexisting nephropathy and volume depletion. Individuals with DM undergoing radiographic procedures with contrast dye should be well hydrated before and after dye exposure, and the serum creatinine should be monitored for 24–48 h following the procedure. Metformin should be held until postintervention confirmation of preserved kidney function.

TREATMENT

Diabetic Nephropathy

The optimal therapy for diabetic nephropathy is prevention by control of glycemia (**Chap. 404 outlines glycemic goals and approaches**). Interventions effective in slowing progression of albuminuria and declining kidney function include (1) improved glycemic control, (2) strict blood pressure control, (3) administration of an ACE inhibitor or ARB, and (4) in individuals with type 2 DM, administration of a SGLT-2 inhibitor. Dyslipidemia should also be treated.

Improved glycemic control reduces the rate at which albuminuria appears and progresses in type 1 and type 2 DM. However, once there is a large amount of albuminuria, it becomes more difficult for improved glycemic control to slow progression of renal disease, although 10-years of normoglycemia resulting from pancreas