Management of Hypertension in Clinical Renal Disease

**FIGURE 6-37**

Treatment of patients with renal disease and high-normal or elevated blood pressure (BP). **A**, All patients should have a measurement of 24-hour protein excretion. If the protein excretion is over 1 g/24 h, an angiotensin-converting enzyme (ACE) inhibitor should be started. The goal of hypertension control in patients with azotemia who have massive proteinuria should be a blood pressure of 125/75 mm Hg or lower. It is unlikely that an ACE inhibitor alone will be able to decrease the blood pressure to this level before hyperkalemia or hemodynamically mediated acute renal failure intervenes. A diuretic and medications from other classes, such as a calcium channel blocker, should then be added.

- **Blood pressure:** 130/85 mm Hg or higher with renal disease
  - **Proteinuria:** 1 g/24 h or more
  - **Begin ACE inhibitor**
    - **Target blood pressure:** 125/75 mm Hg or lower
      - If hyperkalemia or acute renal failure develops, evaluate possible causes
      - If no other precipitant, decrease ACE inhibitor dose
      - Add diuretic, calcium channel blocker

**B**, When protein excretion is less than 1 g/24 h, the blood pressure should be lowered to at least 130/85 mm Hg. No conclusive evidence exists to support the use of one antihypertensive agent or class of agents over another. However, in patients at risk for progressive proteinuria (e.g., diabetic patients with microalbuminuria), ACE inhibitors should be used. Given the importance of sodium retention in the hypertension in renal disease, a loop or thiazide diuretic is a reasonable initial treatment. An ACE inhibitor or calcium channel blocker should be added as a second-line agent.

**FIGURE 6-36**

Race and ethnicity in choice of antihypertensive agents. Racial and ethnic differences also may be important in determining the choice of antihypertensive agent to delay progression of chronic renal disease. Blacks are at much higher risk than are whites for progression of renal disease. In addition, a more aggressive antihypertensive program may be beneficial to blacks. In the Modification of Diet in Renal Disease study, a trend toward a more gradual decline in renal function in blacks randomized to the low mean blood pressure target was seen [36]. Blacks tend to have a better blood pressure response to administration of diuretics than do whites. In a large study of patients with normal renal function, blacks also responded well to calcium channel blockers [53]. The African-American Study of Kidney Disease and Hypertension (AASK), currently in progress, is examining the hypothesis that a lower-than-usual blood pressure goal will have a renal protective effect in renal disease with hypertension. A preliminary finding from the study is depicted. The study randomized blacks with hypertension to the beta-blocker atenolol, the dihydropyridine calcium channel blocker amlopidine, or the angiotensin-converting enzyme enalapril. In the initial 6 months of the study, the mean arterial blood pressure decreased most significantly in the short term with amlopidine [54]. GFR = glomerular filtration rate.
Hypertension and the Kidney


