L 2. HYPERTENSION AND THE DIABETIC KIDNEY

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The earliest stages of diabetic nephropathy are frequently associated with normal blood pressure but as the disease progresses, hypertension almost always occurs. Once present, hypertension accelerates further loss of renal function. In terms of slowing progression of diabetic nephropathy, the most promising intervention to date is aggressive control of systemic hypertension. Relatively longterm, self-controlled studies of small numbers of patients with diabetic renal disease have clearly demonstrated that aggressive control of systemic blood pressure, to mean arterial pressures of about 100 mmHg, with either metoprolol and a diuretic or converting enzyme inhibitor (CEI) therapy slows the development of albuminuria and loss of renal function, as compared to patients with untreated hypertension. In more short-term studies, the ability of CEI to reduce both blood pressure and albuminuria in diabetic patients has been demonstrated in virtually all stages of the disease, from those with advanced nephropathy, to those with normal blood pressure and minimal albuminuria.

That the beneficial effect of CEI in diabetic nephropathy is not solely due to reduction in systemic pressure is suggested by observations that addition of CEI to the existing antihypertensive regimen may induce further reductions in albuminuria and possibly, improved stabilization in renal function, even when systemic blood pressure is not affected. However, little comparison data is avaiable to evaluate whether any antihypertensive regimen is clearly superior to any other in these patients. Studies in diabetic animals suggest and CEI therapy may be more effective than some other regimens in preventing diabetic nephropathy, due to superior control of P_{GC}. While this concept remains to be rigorously tested in longterm trials in humans, there is some evidence that renal hemodynamic consequences of antihypertensive therapy may vary in diabetic patients. In prospective comparison studies, the calcium channel blocker nifedipine and the beta-blocker metoprolol have been reported to be less effective than CEI in reducing albuminuria, while others have reported equivalent effectiveness of CEI and the calcium channel blockers diltiazem and nicardipine. Two recent meta-analyses of hypertensive drugs lower blood pressure, CEI are the most effective in lowering albuminuria. Very preliminary data also suggest that all calcium channel blockers may not have equivalent ability to lower albuminuria in diabetic patients. Though it is clear that systemic hypertension must be treated in these patients, further studies are needed to clarify whether different antihypertensive regimens will prove equally effective in slowing the progression of progressive renal disease.