Editorial

Hypertension and Nephropathy in Diabetes

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Introduction

The need for an effective screening programme to indentify the longterm complications of diabetes has become increasingly apparent during the last decade. It is now accepted that all diabetic patients should undergo an annual review at which the fundi are examined with dilated pupils for retinopathy, the feet and legs are checked for neurological or vascular disease, the blood pressure is measured and the urine checked for protein. It is in the area of hypertension and nephropathy that screening is most effective as microalbuminuria is now a silent but early marker of those at greater risk of renal disease, and hypertension may be present for years and might go undetected unless they are screened for at regular intervals.

Hypertension in Diabetes

It has been recognised for many years that hypertension and diabetes coexist more frequently and will be expected by chance alone even accounting for obesity, which is often associated with Type 2 (non-insulin dependent) diabetes.[1] Recent statistics from the United Kingdom Prospective Diabetes Study suggest that up to 50% of newly diagnosed Type 2 diabetic patients are hypertensive. As hypertension and nephropathy frequently coexist in diabetic patients, the drug therapy of uncomplicated "essential" hypertension will be considered in this first section.

Other causes of hypertension should of course be excluded prior to treatment. Other medications may also be contributory as diabetic patients are frequently on multiple therapies. A question of non-pharmacological intervention is also important: weight reduction is often followed by decreases in blood pressure and there is evidence to suggest that modest restriction of salt intake has a definite hypotensive effect in mildly hypertensive diabetic patients.

For those patients who fail to respond to the above manoeuvres, drug therapy will be necessary. Ideal therapy in diabetes should not adversely affect the metabolic control of the condition or fasting lipids, impair the recognition of hypoglycaemia or further increase the patient's susceptibility to longterm complications such as peripheral vascular disease or impotence.[2]

The thiazide diuretics and beta-blocking agents remain the first line therapy for essential hypertension in the non-diabetic subject, but for several reasons they may be unsuitable as first line agents in diabetes. Both may adversely affect glucose and lipid metabolism, thiazide may aggravate impotence and beta blockers may aggravate peripheral vascular disease. Calcium antagonists are increasingly used as first line agents in diabetic hypertension and seem to have few of the metabolic disadvantages of older therapies. ACE inhabitors are an alternative first line medication for hypertension in diabetic patients and have a more favourable side effect profile than the calcium antagonist. They have no adverse effect on glucose or lipid metabolism and indeed it may have a slight beneficial effect. Caution must always be exercised in older

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Type 2 diabetic patients as an increased incidence of renal artery stenosis has recently been reported in such patients.

Diabetic Nephropathy[3,4]

The syndrome of diabetic nephropathy develops in 30-40% of Type 1 diabetic patients and is characterised by the development of persistent proteinuria, a gradual decline in glomerular filtration rate and increases in blood pressure: this is invariably accompanied by retinopathy. Mogensen and co-workers from Denmark have reviewed the natural history and clinical features of this complication and he described the condition of incipient diabetic nephropathy which is characterised by microalbuminuria, normal or increased GFR and normal or elevated blood pressure. This condition is strongly predictive of late overt nephropathy in diabetes. A number of studies have recently assessed the potential role of ACE inhibitors in the various stages of diabetic nephropathy but evidence that these agents may be beneficial in both incipient and established diabetic nephropathy in retarding the progression of the diease. It has also being shown that strict glycaemic control and restriction of protein intake may prevent the progression of incipient diabetic nephropathy, whereas there is no evidence that strict glycaemic control will have any effect in the natural history of established nephropathy.

Treatment of the patient's established diabetic nephropathy (proteinuria and mild renal function impairment) consists of moderate restirction of dietary protein intake, strict control of hypertension usually using ACE inhibitors and the achievement of stable diabetes control.

Patients who are approaching end stage renal failure should be considered for a renal transplant programme and whilst waiting for appropriate transplantation, chronic ambulatory peritoneal dialysis is the treatment of choice for the patient with end stage renal disease.

It is hoped that early identification of the patient at risk of nephropathy and intervention at this stage will ultimately lead to a reduction in the requirement for end stage renal replacement therapy in the next 10 years.

REFERENCES

1. Sowers JR, Levy J, Zemel MB. Hypertension and Diabetes. *Medical Clinics of North America* 1988; 72: 1399-1414.

2. Boulton AJM, Gokal R. Diabetes and ACE inhibitors. *Journal Human Hypertension* 1990; 4 (suppl 4): 63-67.

3. Grenfell A, Watkins PJ. Clinical Diabetic Nephropathy: natural history and complications. *Clinics of Endocrinology and Metabolism* 1986; 15: 783-806.

4. Mogensen CE, Schmitz O. The Diabetic Kidney: from hyperfiltration and microalbuminuria to end stage renal failure. *Medical Clinics of North America* 1988; 72: 1465-1492.