Contemporary issues in treating hypertensive diabetic patients

Prof. Dr. Carl Erik Mogensen

Department of Diabetes and Endocrinology, Aarhus University Hospitals, Aarhus, Denmark

In the 1970s and 1980s it became evident that there is a clear-cut correlation between progression in renal disease and blood pressure. Subsequently it was shown that antihypertensive treatment could slow the progression of diabetic renal disease, especially using agents that block the Renin Angiotensin System.

Essential hypertension

In patients with essential hypertension it is shown that ACE-inhibition and AT1-receptor blockers reduce blood pressure very efficiently and also microalbuminuria.

Diabetic renal disease Hyperfiltration

It has been suggested that the earliest phase of diabetic renal disease is hyperfiltration - a known risk factor. In this area there is only studies in type 1 diabetes. They clearly document that treatment with ACE-inhibitors and AT1-receptor blockers modulate renal hemodynamics and reduces blood pressure and filtration fraction. There is consequently a beneficial effect in what may be the earliest stage of diabetic renal disease. Treatment of hyperglycemia is also highly effective.

Microalbuminuria

There are now several studies using antihypertensive agents in patients with diabetes and microalbuminuria. In particular, there are studies with agents that block the RAS. Practically all papers confirm the beneficial effects on microalbuminuria in patients of both types of diabetes. GFR is not reduced in these patients and usually treatment is started before the fall in GFR. Also effective treatment of hyperglycemia is important.

A new concept has recently been developed based upon the renal angiotensin system and related to the bradykinin system. There are good reasons to explore combination therapy with so-called dual blockade since ACE-inhibition, in addition to its well-known effects, may increase bradykinins (that may have a positive effect related to blood pressure reduction). Receptor blockers may more efficiently block the AT1 receptor blocker.

The combination treatment (Dual blockade) was well tolerated and as indicated more effective in reducing blood pressure which is a key treatment strategy in type 2 diabetes as documented in the UKPDS study.

Proteinuria

The Renaal and the IDNT Studies have shown that treatment with AT1-receptor blockers seems to postpone end-stage renal disease in a clinically relevant way., At the same time the rate of decline in GFR is reduced. Studies also show that albuminuria is reduced to a greater extent with AT1-receptor blockers than with usual BP-lowering even with the same blood pressure reduction. In type 1 diabetes ACE-inhibition has proven effective.

Conclusion

It can thus be concluded that blockers of the RAS are efficient in all stages of diabetic renal disease from the begining to the very end. In all studies the side-effects-profile is good. In certain situations, there may be a slight increase in serum potassium that can be easily controlled. There may also be a slight reduction in GFR which is in fact part of the treatment strategy because glomerular filtration pressure is reduced. However there are only few new reports of severe decline in GFR in the usual clinical settings, and mostly with high doses.

Since end-stage-renal disease due to type 2 diabetes is an increasing problem all over the world these results will be of great benefit in the clinical management of diabetic patients.

It should be emphasized that near-normalisation of blood glucose throughout the course of diabetes is essential in preventing renal lesions and disease.

REFERENCE

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