

The [Dakota Diabetes Coalition](#) is proud to offer a new feature, which we hope you find useful. Dr. Eric Johnson writes a column for this space every other Friday.



Dr. Johnson is a family practice doctor in Grand Forks with a special interest in diabetes -- and a special knack for writing. As a member of the Dakota Diabetes Coalition, he has generously made himself available to answer questions through our listserv. *If you have comments about the column, or questions for Dr. Johnson to address in future columns, please contact gailhand@gwest.net*

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<http://www.ndhealth.gov/diabetescoalition/>

It pays to know your ARBs from your ACEs!

Hypertension Treatment and Medications in Diabetes

Q. What's behind this sudden interest in controlling hypertension in patients with diabetes? It's hard enough getting them to test blood sugar!

A. Nearly two thirds of patients with type 2 diabetes and pre-diabetes syndromes will develop cardiovascular complications. These include stroke, cerebrovascular disease, heart attack, coronary artery disease, or peripheral arterial disease (PAD).

Glucose control is important in reducing the incidence and severity of these complications, but aggressive hypertension management is important as well in all diabetes patients. As the type 1 population gained a longer life span, it became clear that these patients are also at high risk for cardiovascular complications.

Aim for 130/80 in diabetic patients

Hypertension is an extremely common co-morbidity in diabetes, and is very likely rooted in the insulin resistance common to pre-diabetes and type 2 diabetes patients. The target for blood pressure control recommended by the American Diabetes Association is 130/80 for all patients with diabetes. The Joint National Commission VII and the American Heart Association similarly recommend tight blood pressure control for people with diabetes.

Patients who consistently achieve this target have lower rates of cardiovascular complications, kidney disease and microalbuminuria. Numerous trials are considered conclusive, perhaps most famously the HOPE trial, which was published in 2000. It demonstrated reductions in cardiovascular endpoints, as well as overall improvement in survivability in patients on the ACE inhibitor ramipril (Altace).

ACE--first line agents

In the treatment of hypertension in diabetes patients, ACE inhibitors are first line agents as recommended by the American Diabetes Association. ACE inhibitors are also indicated in non-hypertensive diabetes patients with microalbuminuria or gross proteinuria. ACE inhibitors are not indicated for all patients with diabetes based solely on that diagnosis or their age. There are numerous ACE inhibitors on the market: captopril, enalapril, ramipril, moexetil and lisinopril are common. All of these agents are effective, but an advantage for most people is that ramipril, moexetil or lisinopril is taken just once a day.

Serum creatinine and electrolytes must be monitored in patients on ACE inhibitors; a rising serum creatinine or rising potassium may indicate another underlying kidney problem such as renal artery stenosis. These patients should be referred to a nephrologist for more definitive management.

Bring in diuretics

Most patients with diabetes and hypertension will need more than one agent to achieve a target blood pressure of 130/80. Thiazide diuretics are commonly used, often compounded in combination pills with ACE inhibitors. Certain patients need to avoid diuretics, such as those with gout, but generally they are well tolerated.

Three types of blockers

Beta-blockers, such as atenolol or metoprolol may be used in patients with established coronary artery disease, and carvedilol (Coreg), a mixed function alpha- and beta-blocker, is used in patients with established coronary artery disease or congestive heart failure.

Calcium channel blockers are also very useful, particularly amlodipine (Norvasc), which is very effective for treating elevated systolic blood pressure.

Angiotensin receptor blockers (ARB's) are considered first line drugs in type 2 patients, and are also excellent alternatives to ACE inhibitors. About 10% of patients taking ACE inhibitors will develop chronic cough.

Strong data exist for reduction in cardiovascular complications and kidney disease in patients taking ARB's such as Cozaar, Micardis, Diovan and Avapro, among others. Occasionally, patients with kidney disease will be on both an ACE and an ARB, usually managed by a nephrologist.

- A promising new agent likely to appear on the market this year is the novel renin inhibitor, Aliskiren. Its role for diabetes patients has yet to be determined, but likely will have some use for hypertension management.

How to keep current

For more information, note the address below, which is updated each January:

http://care.diabetesjournals.org/cgi/reprint/30/suppl_1/S4

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