

Taking Control: BP & Dyslipidemia in Diabetes



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At least 90% of patients with Type 2 are hypertensive ($> 130/80$ mmHG) and have either low-density lipoprotein (LDL) cholesterol > 2.5 mmol or a total cholesterol/high density lipoprotein (HDL) > 4.0 mmol. Furthermore, over 90% have a body mass index (BMI) > 25 and a waist circumference of ≥ 102 cm. Most will satisfy definitions of the metabolic syndrome, and have a two- to fivefold risk of adverse cardiovascular outcomes.¹



Lorne's Lament

Lorne, 55, is new to your practice. He was diagnosed with diabetes three years ago. His current medications are ramipril, 10 mg/day, and glyburide, 5 mg twice/day. He is a lifetime non-smoker and drinks alcohol "socially".

Lorne rarely tests his glucose and does not own a home blood pressure monitor. He denies angina, heart attack, stroke, transient ischemic attack, or intermittent claudication.

For more on Lorne, go to page 84.

Is hypertension treatment effective?

The Systolic Hypertension in the Elderly Program (SHEP) reported a 33% reduction of stroke when patients with diabetes and isolated systolic hypertension were treated with chlorthalidone.² While a similar relative risk reduction was noted for those without diabetes, due to their higher baseline risk, patients with diabetes had a greater absolute risk reduction. Tables 1 and 2 list initial drug therapy for diabetes patients with hypertension and other treatment options.

Table 1

Initial Pharmacologic Therapy for Hypertensive Diabetes Patients

Diabetics under 60

- Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB)

Older patients without microalbuminuria or proteinuria

- Thiazides diuretic or long-acting dihydropyridine calcium antagonist (e.g., amlodipine)

Patients with microalbuminuria or proteinuria

- Start with ACE inhibitor or ARB
- Reverse combination of ACE inhibitor and ARB for patients with proteinuria; usually in consultation with a nephrologist.

*Three or four classes of antihypertensives may be needed to reach blood pressure targets.

*A diuretic should almost always be included.

At least 90% of patients with Type 2 diabetes are hypertensive.

Table 2

Other Treatment Options

- Most diabetes patients have a 10-year coronary artery disease risk > 10% and should therefore take acetylsalicylic acid (ASA).⁴ There is a growing consensus that 81 mg/day is the optimal dose.
- Recent data support the recommendation of a daily multivitamin.

Why lower blood pressure targets?

The Hypertension Optimal Treatment (HOT) study found diabetes patients randomized to the lowest diastolic blood pressure targets (< 80 mmHg) had 51% fewer cardiovascular events than those randomized to < 90 mmHg.³ The Canadian Hypertension Society recommends aiming for 130/80 mmHg or less. For patients with proteinuria (1 g/day) a target of < 125/75 mmHg is recommended. However, it is important to note recent data from the African American Study of Kidney Disease (AASK) do not support the latter recommendation.

Lorne's Statistics

Lorne's BMI is 32.9 and his waist circumference is 112 cm. His blood pressure averages 146/71 mmHg on four readings. There is no clinical left ventricular hypertrophy, no bruits, and pedal pulses are easily palpable. His optic fundi show only a few microaneurysms. Ankle-deep tendon reflexes are absent, vibration sense at the toes is reduced, and 10 g monofilament sensation is impaired.

Test results:

- Urinalysis: no sugar, trace protein
- Complete blood cell count, electrolytes, and creatinine: all normal
- Urine microalbumin/creatinine ratio: 1.8
- Fasting glucose: 9.2 mmol
- HbA1c: 8.3
- Total cholesterol: 4.80 mmol
- Triglycerides: 2.21 mmol
- High density lipoprotein: 0.93 mmol
- Low density lipoprotein: 2.87 mmol
- Electrocardiogram: normal

What about lipids?

Most diabetes patients do not have a markedly abnormal lipid profile. Recent studies showed statins reduce risk of adverse cardiovascular events in diabetic patients, regardless of their baseline cholesterol level.⁵ This led to recommendations of goal LDL cholesterol as low as 1.8 mmol for very high-risk patients (*e.g.*, those with diabetes and a history of myocardial infarction [MI]).⁶



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Diet and exercise are certainly important. Triglycerides are very sensitive to changes in diet; simple sugars and alcohol elevate triglycerides. However, most patients with diabetes will require pharmacologic therapy (Table 3).

Although outcome data for fibrates is sparse in comparison for those with statins, they appear to be effective in reducing morbidity and mortality.⁷ Adding a statin to a fibrate, particularly gemfibrozil, should be done with caution because of an increased risk of myositis with the combination.

Managing Lorne

Lorne is prescribed daily ASA, 81 mg/day, and a multivitamin tablet. He is encouraged to attain a weight corresponding to a BMI of ≤ 30 .

Lorne's exercise program should be supervised and managed in the same fashion as an MI survivor. An exercise tolerance test prior to any exercise program is also an option.

Lorne's target blood pressure goal is 130/80 mmHG. A home blood pressure monitor might improve compliance with medications. To achieve his target, Lorne will need a diuretic and likely, another agent, in addition to his ACE inhibitor.

His target LDL cholesterol is < 2.5 mmol. He should be prescribed a statin and his blood sugar level should be monitored. Because of his neuropathy, Lorne should see a podiatrist regularly. **CME**

References

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Table 3

Lipid Treatment Options

When LDL can be calculated:

- Use a statin

When triglycerides are too high to calculate LDL:

- Use a fibrate (e.g., gemfibrozil or fenofibrate)

* If target LDL is not achieved, either increase the dose of statin, or chose the more expensive route of adding ezetimibe or cholestyramine.

Take-home message



- Type 2 diabetes patients require multiple drug therapy to reach blood pressure and lipid goals.
- Don't forget to recommend ASA and a multiple vitamin.
- Diet and exercise are important adjunctive therapies.