CLINICAL CASES

Diabetes:

Case by Case

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As presented at the annual Dalhousie Refresher Course. Halifax, Nova Scotia.

The 2003 revision of the Canadian Diabetes Association's evidence-based Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada emphasized the need for greater vigilance in screening and prevention and a more aggressive approach to diabetes management.

Blood pressure

- Sophia, 63, with Type 2 diabetes has an A1c of 6.8%.
- She is taking multiple-dose insulin therapy.
- Her blood pressure is 135/85 mmHg.

Is she in the target range?

No.

The blood pressure target is ≤ 130/80 mmHg, regardless of the presence of nephropathy. The initial agent of choice here would be an angiotensin-converting enzyme inhibitor, but an angiotensin receptor blocker, cardio selective beta-blocker, thiazide-like diuretic or long-acting calcium channel blocker could also be used.

A1c

- Roxanne, 56, complains of polyuria, polydipsia, fatigue and weight loss.
- Her body mass index is 32.
- Her fasting plasma glucose is 9.8 mmol/L.
- Her A1c is 11.3%.

How should she be managed?

She should be simultaneously started on insulin or on two oral agents from different therapeutic classes, in addition to lifestyle modification. Assuming her cardiac, hepatic and renal function is good, one oral agent should be metformin, due to her obesity. The regimen should be adjusted in accordance with her test results so that the target A1c is attained within six to 12 months.

The guidelines acknowledge that where the A1c is ≥ 9%, the use of a single oral agent will be insufficient for the patient to attain a value in the normal range. Furthermore, the use of insulin from the outset is an appropriate alternative that should be considered in these patients.

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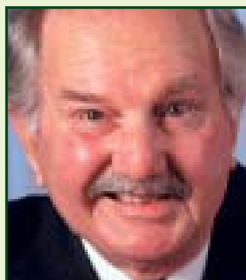
TC:HDL-C ratio



- Marv, 58, with Type 2 diabetes has:
  - triglycerides of 3.18 mmol/L,
  - total cholesterol of 5.94 mmol/L,
  - high-density lipoprotein (HDL) cholesterol of 0.87 mmol/L,
  - low-density lipoprotein (LDL) cholesterol of 3.29 mmol/L and
  - a total cholesterol (TC):HDL-C ratio of 7.

What are your management recommendations?

Typically, in Type 2 diabetes, there is hypertriglyceridemia, with low HDL and normal LDL (but increased small, dense LDL particles). The recommended targets are < 2.5 mmol/L for LDL-cholesterol, with TC:HDL-C < 4.0. The optimal triglyceride level is < 1.5 mmol/L.

In addition to lifestyle modification, the initial treatment here should be a statin. If the patient's main problem is triglycerides > 4.5 mmol/L, it would be reasonable to use a fibrate as initial drug therapy. Unless contra-indicated, low-dose acetylsalicylic acid therapy (80 mg/day to 325 mg/day) is also recommended.

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New Type 2 diabetes & exercise

- Janine, 53, has just been diagnosed with Type 2 diabetes.
- She has been told to restrict her diet and to exercise regularly.

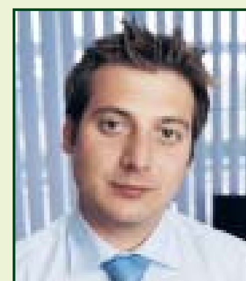
She asks: "How much exercise is appropriate?"

She should accumulate at least 150 minutes of moderate-intensity, aerobic exercise each week, spread over at least three non-consecutive days of the week or, if she is willing, ≥ 4 hours of exercise per week.

If she is planning to exercise more vigorously than a brisk walk, an exercise electrocardiogram stress test should be considered.

In addition, she should be encouraged to perform resistance exercises three times per week.

Control targets



- Mike, 25, is a university student with Type 1 diabetes on multiple-dose insulin injections.
- He is compliant with his diet and exercise regimen.
- His A1c is 6.8%.

Can he rest on his laurels?

No.

The new guidelines indicate that while the general A1c target of 7% can be safely achieved, a target of 6% is preferred.

Type 2 diabetes & family history

- Vikram, 39, is East Indian and presents with a fasting plasma glucose (FPG) of 5.8 mmol/L on routine blood work.
- His body mass index is 26 and he is asymptomatic.
- His mother has Type 2 diabetes.

Is any further investigation required?

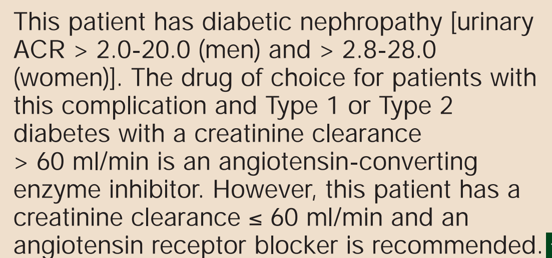
This patient should undergo a 75-gm oral glucose tolerance test (OGTT). Screening with an FPG should be performed every three years in individuals older than 40 years without risk factors, but earlier and more frequently in individuals who have risk factors.

This patient has two risk factors for Type 2 diabetes. Individuals with risk factors whose FPG is 5.7mmol/L to 6.9 mmol/L should have a 75-gm OGTT.

Type 2 diabetes & nephropathy

- Gladys, 63, with Type 2 diabetes has a urinary albumin to creatinine ratio (ACR) of 35 mg/mmol.
- A 24-hour urine collection is taken and shows 450 mg of protein and a creatinine clearance of 55 ml/min.

What management would you suggest?



This patient has diabetic nephropathy [urinary ACR > 2.0-20.0 (men) and > 2.8-28.0 (women)]. The drug of choice for patients with this complication and Type 1 or Type 2 diabetes with a creatinine clearance > 60 ml/min is an angiotensin-converting enzyme inhibitor. However, this patient has a creatinine clearance ≤ 60 ml/min and an angiotensin receptor blocker is recommended. Dx