

SCREENING AND MANAGEMENT OF CARDIOVASCULAR RISK IN DIABETES

Lipids

Hypercholesterolaemia is an important reversible risk factor for cardiovascular disease and should be tackled aggressively in all diabetic patients.

- In Type 1 patients, normal or high HDL-cholesterol concentrations are often seen. However an elevated HDL-cholesterol is not associated with the same cardio-protective effect as in non-diabetic individuals.
- The characteristic hypertriglyceridaemia of Type 2 diabetes is mild hypercholesterolaemia, low HDL-cholesterol and hypertriglyceridaemia.
- Triglyceride concentrations are elevated by poor glycaemic control. Triglycerides may normalise with good glycaemic control, attention to diet and increasing exercise. Excess alcohol consumption is also associated with elevated triglyceride concentrations.

Screening for dyslipidaemia

- Lipids should be checked at diagnosis and annually thereafter.
- Assess more frequently if lipid-lowering therapy is prescribed.
- Total cholesterol, HDL-cholesterol and triglycerides should be requested. For ease, non-fasting estimation is usually adequate. Lipids should not be screened in people whose life expectancy is estimated to be less than five years.

MANAGEMENT

1. Lifestyle Advice

Reinforce dietary advice and optimise glycaemic control.
Provide weight reduction diet for those with BMI > 25.
If BMI > 30, set target of 5-10 kg weight loss.
Increase fruit and vegetable consumption (5 portions per day).
Increase oily fish consumption (2 portions per week).
Reduce saturated fat intake.
Encourage regular exercise

2. Exclude (and Treat) Secondary Causes of Hypercholesterolaemia

Alcohol excess
Hypothyroidism
Nephrotic Syndrome
Cholestasis
Drugs (e.g. diuretics, corticosteroids)

3. Drug Treatment: Patients with existing cardiovascular disease (Secondary Prevention)

Includes diabetic patients with angina, myocardial infarction, cerebrovascular disease and peripheral vascular disease

- Treat with a Statin if **Total cholesterol ≥ 5 mmol/L**
- All patients should receive Aspirin. If aspirin is contraindicated, alternative anti-platelet therapy, such as clopidogrel, should be considered.

4. Drug Treatment: Patients without cardiovascular disease (Primary Prevention)

- Type 1 and Type 2 patients with evidence of nephropathy (microalbuminuria or proteinuria present) should be regarded as candidates for secondary prevention and treated with a statin.
- Consider this approach also in Type 1 patients with a family history of premature ischaemic heart disease

- In all other patients, the absolute risk of developing CHD over 10 years may be calculated using the Joint British Coronary Prevention Chart (see Website for electronic version).
- Treatment with a statin is recommended when the 10 year risk of the event is $\geq 30\%$
- Consider treatment at a lower risk threshold (e.g. 15-30% risk) in people with diabetes as true CHD risk may be under-estimated by the chart
- The Joint British Chart does not take into account a family history of premature CHD. Where this is relevant (i.e. 1st degree male relative affected before age 55 or female before age 65), multiply the risk of an event by a factor of 1.5 to obtain a more accurate assessment.
- Consider adding Aspirin in patients whose 10 year risk of an event is $\geq 15\%$.

Assessment of absolute CHD risk may be performed using the Joint British Coronary Prevention Chart. Intervention with a statin is recommended if 10 year risk of an event is $\geq 30\%$

RISK ESTIMATION SHOULD NOT BE PERFORMED IN

- **Patients with existing cardiovascular disease**
- **Type 1 & Type 2 patients with nephropathy.**

Age Limits

- There should be no 'upper age limit' for prescribing lipid-lowering therapy. Each individual should be considered on his/her own merits and, if life expectancy is estimated to be greater than five years, lipid-lowering therapy should be prescribed if standard criteria are met
- Once treatment is established, it should not be discontinued at any particular age, unless clinically indicated due to other conditions.

In patients with persistently raised Triglyceride concentrations

Check fasting sample (Total-cholesterol, HDL-cholesterol & Triglycerides)

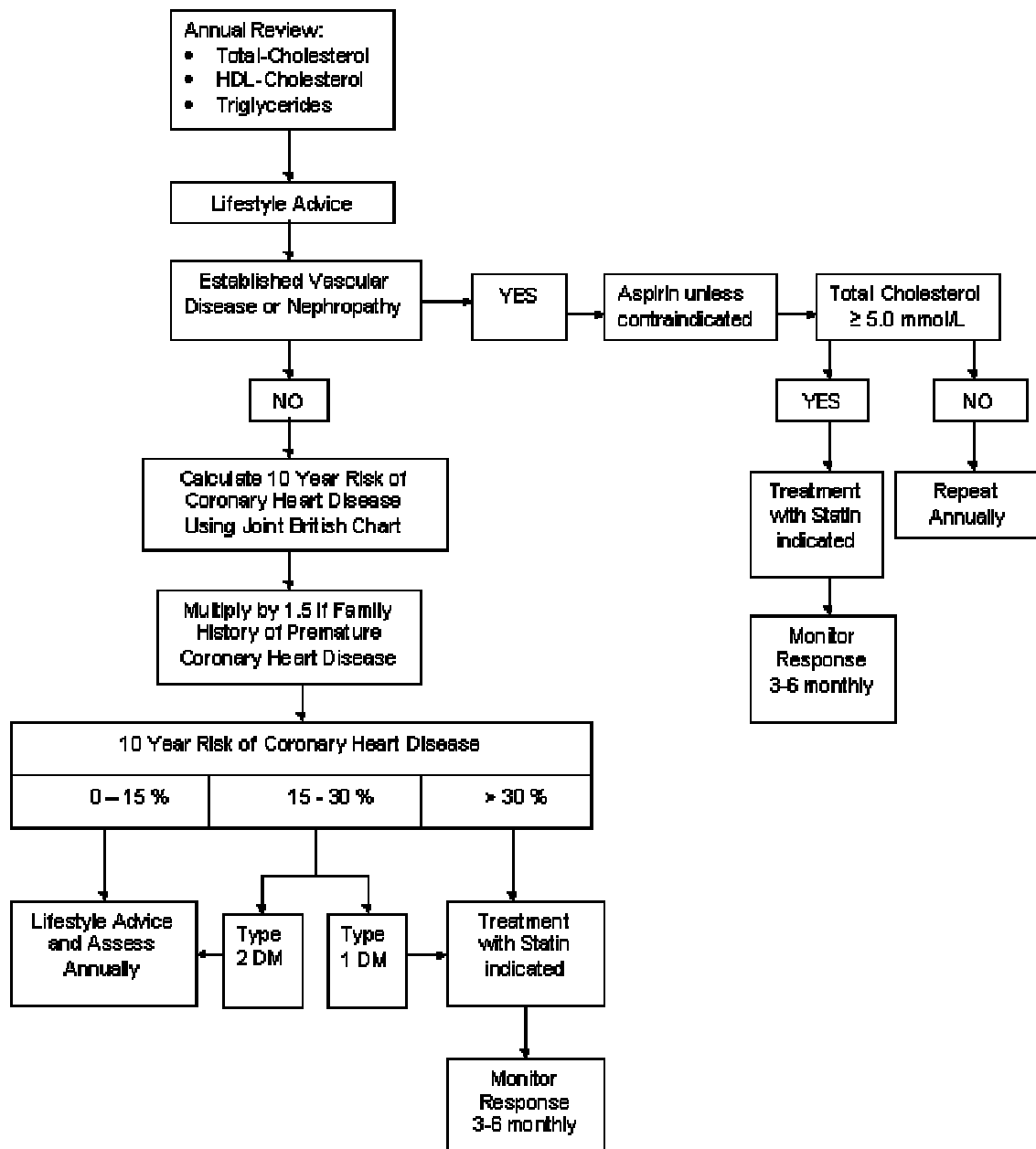
Optimise glycaemic control

Exclude co-existing pathology e.g. alcohol excess.

LIPID LOWERING DRUGS

Drug choice should be made on the balance of trial evidence, safety and cost-effectiveness

Flowchart for Management of Dyslipidaemia in Diabetes



Statins

- First-line choice for isolated hypercholesterolaemia or combined hyperlipidaemia, providing (random) triglycerides are < 5 mmol/l. See Lothian Joint Formulary for preparations.
- Monitoring of liver function and creatinine kinase is recommended

Fibrates

- Suitable if combined hyperlipidaemia present (random triglycerides >5 mmol/L)
- Not advisable in the presence of renal impairment (serum creatinine > 150 µmol/l)
- Combination therapy with a Statin is possible, but close monitoring of liver function and creatinine kinase is essential (increased risk of hepatic damage and myositis)