Sheffield Teaching Hospitals NHS
NHS Foundation Trust

NHS Sheffield
Clinical Commissioning Group

Lipid Modification for the primary prevention of CVD in Younger Adults with Type 2 Diabetes

Is the patient under 40yrs of age? Yes / No

No → Please refer to the lipid modification in primary prevention guidelines.

Yes → Is the patient over 18 years of age?

No → **Do not routinely offer statins to young people with type 2 diabetes under 18 years old unless initiated/recommended by a paediatrician.**

Yes →

Do not use QRISK2/3 risk calculators to assess CVD risk in these patients as it underestimates CVD risk in this group. Perform **baseline blood tests** as follows:

⇒ **Non-fasting lipid profile**. If TC>9mmol/L or non-HDL-C>7.5mmol/L, see FH referral criteria. Also if raised TG(>10mmol/L), recheck with fasting sample, exclude common secondary causes of dyslipidaemia and seek specialist advice if still >10mmol/L. **NB** TG>20mmol/l requires urgent referral to specialist service.

⇒ **HbA1c, U&Es, LFTs and TSH**. If hypothyroid, correct hypothyroidism before offering statins

⇒ If unexplained muscle pain reported then consider baseline creatine kinase. See also cautions and contraindications

Offer lifestyle advice and manage modifiable risk factors such as– diet and weight loss (CG189), exercise, reducing alcohol intake (less than 14units/week with several alcohol free days) and smoking cessation. Agree an outcome timeframe not >6months for reviewing lifestyle changes.

18-29 years

Offer Atorvastatin 20mg to patients with **ANY** of the following;

- **Evidence of end organ damage,** such as proliferative retinopathy, CKD 3-5 (including CKD 1 and 2 with persistent albuminuria) or autonomic neuropathy
- **Hypertension** (treated or untreated)
- **family history of premature CVD <50years**

Consider offering a statin if there is central obesity, poor control of diabetes (>75mmol/mol), current smoker or ex smoker in last 10 years, long duration of diabetes (>10 years) **especially** where lifestyle modification has been unsuccessful.

30-39 years

Offer Atorvastatin 20mg to patients with **ANY** of the following;

- **Evidence of end organ damage,** such as proliferative retinopathy, CKD 3-5 (including CKD 1 and 2 with persistent albuminuria) or autonomic neuropathy
- **Hypertension** (treated or untreated)
- **family history of premature CVD <50years**
- **Central obesity**
- **Poor control of diabetes**
- **current smoker or ex-smoker in last 10 years**
- **long duration of diabetes (>10 years).**

Consider using tools such as the QRISK Lifetime risk calculator and the JBS3 risk calculator as part of the conversations for statin initiation, where appropriate, taking into consideration multi-morbidity and patient priorities. Please note these tools will not work for patients <30yrs old.

Please refer to the **Lipid modification for the primary prevention of CVD in Adults guidelines** and product SPC for information about Efficacy monitoring, Safety monitoring, statin intolerance and drug interactions.

For more information about switching from a low or medium intensity statin to atorvastatin 20mg, please see **Box 2** overleaf.

Statins are contraindicated in women of child bearing potential. Do not prescribe statins unless there is appropriate contraception. Advise women to stop taking statin if pregnancy is a possibility or 3 months before attempting to conceive and not to restart until breastfeeding has stopped. **See also the medicines with teratogenic potential guidelines.**

Cautions and Contraindications

Use with caution in those who are; elderly, have high alcohol intake (>50units/week), previous history of liver disease or deranged transaminases or at increased risk of muscle toxicity (e.g. those with a personal or family history of muscular disorders, previous history of muscular toxicity, renal impairment or hypothyroidism). For patients at increased risk of muscle effects baseline CK should be done and if levels are >5xULN levels should be rechecked in 7 days. Statin should **not** be started if CK level is still >5xULN.

Statins are contraindicated in patients with active liver disease or transaminase levels >3xULN, in pregnancy and breastfeeding including women of child-bearing potential not using adequate contraception.

Box1

Measuring Central Obesity (adapted from NICE CG189)- This should be based on both BMI measurement and waist circumference. See NICE CG189 for details of obesity classification.

Men– waist circumference >94cm

Women– waist circumference >80cm.

Box 2

Table 1 Switching between statins (adapted from NICE CG181)

It may not be possible to assess a 40% reduction in non-HDL-C in patients who are already on statin treatment, as there might not be a non-HDL-C reading from before statin treatment was started. This is of particular importance where a patient is on a low or medium intensity statin and there is still some benefit to be gained by switching to a high intensity as per NICE CG181. The box below is therefore meant to be used as a guide for healthcare professionals where pre-statin non-HDL-C levels are not available.

Current statin (total daily dosing in mg)	Estimated reduction in non-HDL-C if switched to atorvastatin 20mg	Current statin (total daily dosing in mg)	Estimated reduction in non-HDL-C if switched to atorvastatin 20mg
Fluvastatin 20mg	22%	Simvastatin 10mg	16%
Fluvastatin 40mg	16%	Simvastatin 20mg	11%
Fluvastatin 80mg	10%	Simvastatin 40mg	6%
Pravastatin 10mg	23%	Atorvastatin 10mg	6%
Pravastatin 20mg	19%	Rosuvastatin 5mg	5%
Pravastatin 40mg	14%		

For example, in a patient currently treated with simvastatin 40mg and a most recent non-HDL cholesterol of 4.0mmol/l, you may expect to see at least a further 6% reduction in non-HDL cholesterol (to 3.76mmol/l) by switching to atorvastatin 20mg. For information about statin groupings into low, medium or high intensity, please see NICE CG181.

BMI- body mass index, **CK**- creatine kinase, **CKD**- chronic kidney disease, **CVD**- cardiovascular disease, **HbA1c**– Haemoglobin A1c, **HDL-C**- high density lipoprotein cholesterol, **LFT–** Liver function test, **SPC–** Summary of product characteristics, **TC**- total cholesterol, **TG**- triglyceride, **TSH**- thyroid stimulating hormone, **U&Es–** Urea and electrolytes, **ULN**- upper limit of normal.

REFERENCES

NICE CG181- Cardiovascular disease: risk assessment and reduction, including lipid modification.

Joint British Societies' consensus recommendations for the prevention of cardiovascular disease (JBS3). *Heart* 2014;100: ii1-ii67.

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Approved by APG– 05 February 2020
Review date– February 2025