Wales Centre for Pharmacy Professional Education
Canolfan Addysg Fferylliaeth Broffesiynol Cymru

HYPERLIPIDAEMIA

Top tips for MURs

- Check patient understands why medication has been prescribed
- Offer information about their cardiovascular risk using appropriate diagrams and text
- Counsel patient on the need to take medication regularly and address any compliance issues
- Counsel patients on statins to promptly report unexplained muscle pain, tenderness or weakness
- Advise patient to take statin at the same time each day and to take simvastatin or pravastatin at bedtime
- Advise patients prescribed simvastatin to avoid grapefruit juice
- Remind patient to restart statin if they have temporarily stopped treatment because of drug interactions or another illness
- Check that patients prescribed simvastatin with amiodarone, amlodipine, diltiazem, ranolazine or verapamil are prescribed a maximum dose of 20mg
- Advise patients of child bearing age of the potential teratogenic risk of statins and to stop taking statins 3 months before attempting to conceive and not restart until they have finished breastfeeding
- Advise patients about the importance of regular reviews with prescriber including appropriate tests
- Counsel patient on common side effects (**see overleaf**) and the signs and symptoms of complications that need urgent referral (**see red flags below**)
- Report any relevant adverse drug reactions to the Yellow Card Scheme

Pathophysiology of hyperlipidaemia

Hyperlipidaemia arises when serum cholesterol or triglycerides, or both, reach levels associated with an increased risk of cardiovascular disease (CVD). Raised serum cholesterol is associated with cholesterol deposits in arterial walls resulting in the build-up of fatty plaques. The arterial wall stiffens and eventually restricts blood flow causing conditions such as angina or intermittent claudication. Blood clots (thrombi) can form on the plaque surface resulting in a sudden occlusion i.e. stroke or myocardial infarction.

Lipid lowering therapy should be offered to all patients with CVD regardless of their cholesterol levels. The decision to treat people who have not had a cardiovascular event (primary prevention) is based on QRISK2[1] risk assessment tool, and current NICE guidance recommends offering treatment to people, including those with type 2 diabetes, with a 10 year risk of at least 10%. Treatment should also be offered to people with type 1 diabetes, aged over 40 years, who have had diabetes for more than 10 years or who have established nephropathy or other CVD risk factors. Treatment should also be offered to people with familial hypercholesterolaemia and to those with chronic kidney disease.

NICE guidance recommends the use of non-HDL cholesterol rather than LDL cholesterol and a fasting sample is NOT required.

NON-HDL cholesterol = total cholesterol – HDL cholesterol

Lifestyle issues

- Advise patient to eat a cardioprotective diet - low in fat, sugar and salt and including five portions of fruit and vegetables a day. Include two portions of fish a week, at least one oily fish. Eat at least 4 to 5 portions of unsalted nuts, seeds and legumes per week.
- Advise patients who ask about the use of plant stanols or sterols that there is no evidence that these reduce cardiovascular events, so are not recommended
- Encourage patient to increase their physical activity
- Counsel patient on weight reduction if overweight. Signpost local weight management or exercise schemes (see local authority website for information)
- Advise patients who smoke of benefits of smoking cessation and refer to Stop Smoking Wales or Pharmacy Stop Smoking services if willing to stop
- Counsel patient on reducing alcohol intake to within safe limits (up to 14 units a week, spread evenly over 3 more days, with several alcohol free days)

Red flags that need referral

- Muscle symptoms (pain, tenderness or weakness)
- Pregnancy and breastfeeding
- Signs of hepatotoxicity (nausea, vomiting, abdominal pain, loss of appetite and jaundice)

Written by Andrea Robinson, July 2014
Expert review: Helen Mardon, CwmTaf HB, July 2014
Update review: Kate Macnarmara, February 2017

How do drugs used to treat hyperlipidaemia work?

Statins	Inhibits HMG-CoA and blocks synthesis of cholesterol in the liver. Reduces total cholesterol and LDL-cholesterol; moderately increases HDL-cholesterol and reduces plasma triglycerides.
Ezetimibe	Prevents absorption of dietary and plant sterols. Reduces LDL-cholesterol; moderately increases HDL-cholesterol and reduces plasma triglycerides.
Fibrates	Inhibit the synthesis of triglycerides and increase elimination. Reduces triglycerides; moderately increases HDL-cholesterol; variable effect on LDL-cholesterol.
Bile acid sequestrants (anion exchange resins)	Combines with bile acids in intestine preventing reabsorption and recirculation via enterohepatic route. Cholesterol is a major precursor of bile acids.
Nicotinic acid	Lower cholesterol and triglyceride levels by inhibiting synthesis whilst also increases HDL-cholesterol.

What are the common side effects to look out for?

Drug	Common side effects	Recommendation
All statins	Muscle pain, tenderness or weakness	Refer to prescriber for further tests.
Atorvastatin	Allergic reactions, gastrointestinal disturbance, headache, hyperglycaemia, nasopharyngitis	Refer to prescriber if side effects are persistent.
Ezetimibe	Abdominal pain, diarrhoea, fatigue, headache, myalgia,	Refer to prescriber.
Fibrates	Decreased appetite, gastrointestinal disorders	Refer to prescriber.
Bile acid sequestrants (anion exchange resins)	Constipation is most common but diarrhoea, nausea and vomiting can also occur	Advise patient usually short term. Offer dietary advice. More likely in older patients and with high doses. If persistent refer to prescriber.
Nicotinic acid	Vasodilation, gastrointestinal disturbances, itching, rashes	Refer to prescriber.

Potential serious drug interactions?

Lipid regulating drugs interact with each other and many other medications, such as: anti-arrhythmics, antibacterials, anticoagulants, antidiabetics, antiepileptics, antifungals, antivirals, calcium channel blockers, ciclosporin, clonidine, colchicine, cytotoxics, hormone antagonists, lipid regulating drugs, ranolazine and ticagrelor - **See BNF Appendix 1: Interactions for more details**

Combination of a statin with a fibrate or nicotinic acid carries an increased risk of side effects including rhabdomyolysis and should only be used under specialist care. The concomitant administration of gemfibrozil with a statin increases the risk of rhabdomyolysis considerably so should not be used.

There is a risk of rhabdomyolysis with the combination of fusidic acid and a statin – the statin should be temporarily stopped and not restarted until 7 days after the last dose of fusidic acid.

Where can you find more information?

- BNF sub-section 2.12 lipid-regulating drugs
- Cardiovascular disease- cardiovascular risk; e-learning module that can be found on WCPPE website (**http://www.wcppe.org.uk**)
- NICE guideline CG181 Lipid modification: cardiovascular risk assessment and the modification of blood lipids for primary and secondary prevention of cardiovascular disease available on NICE website (**http://www.nice.org.uk**)
- Clinical Knowledge Summary – Lipid modification that can be found on website (**http://cks.nice.org.uk**)
- NHS Choices – Live Well - healthy living advice that can be found on website (**http://www.nhs.uk/Livewell**)
- Heart UK (**http://www.heartuk.org.uk**)

References

1. QRISK®2 CVD risk calculator (**http://www.qrisk.org**)

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