



The patient requests statin therapy for cholesterol: a challenging case history

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Patients with moderately elevated LDL cholesterol levels but low cardiovascular risk are often best managed with diet and lifestyle advice and reassurance.

Case scenario

Miss JM is 46 years old and a generally healthy person, with no past history suggestive of ischaemic heart disease. She presents to her GP for a 'check-up' and reassurance after a female work colleague recently had a heart attack at the age of 51 years.

Miss JM follows a reasonable diet and has never smoked. Her paternal

grandparents died in their late 70s from ischaemic heart disease, but there is no other history of heart disease in first-degree relatives. She is premenopausal, her blood pressure and body weight levels are satisfactory, and there is no corneal arcus. A limited panel of blood tests is performed, with the following results (Table):

- cholesterol, 7.0 mmol/L

Key points

- Assessment of cardiovascular risk is a routine part of GP care.
- Diet remains a cornerstone of therapy and statin drugs should be reserved for those patients at high risk.
- In middle-aged patients without prior cardiovascular disease, it is helpful to perform a calculation of five-year absolute risk.
- Absolute risk exceeding 10 to 15% is generally taken as a threshold indicating a need for statin therapy.
- Statin drugs may occasionally cause myalgia and mood changes or other CNS symptoms. These problems are best managed by cessation of drug and awaiting resolution over the next few weeks. Other statins may be tried later in high-risk cases (e.g. pravastatin or very low-dose rosuvastatin).

CARDIOLOGY TODAY 2011; 1(2): 18-19

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Table. The patient's blood test results

Results	Total cholesterol (mmol/L)	LDL cholesterol (mmol/L)	HDL cholesterol (mmol/L)	Triglycerides (mmol/L)	Creatinine (µmol/L)	Glucose (mmol/L)	CK (U/L)	ALT (U/L)	AST (U/L)	GGT (U/L)
At first visit	7.0	5.0	1.6	0.9	81	5.1	ND	ND	ND	ND
After six weeks on diet	6.8	4.8	1.5	1.1	ND	ND	ND	ND	ND	ND
After three weeks on statin	4.8	2.8	1.6	0.9	83	4.9	210	36	28	34

ABBREVIATIONS: ALT = alanine transaminase; AST = aspartate transaminase; CK = creatine kinase; GGT = gamma glutamyl transferase; HDL = high density lipoprotein; LDL = low density lipoprotein; ND = not done.
Selected reference values: creatinine <110 µmol/L; glucose <5.5 mmol/L; CK <230 U/L; ALT and AST <45 U/L; GGT <55 U/L.

- triglycerides, 0.9 mmol/L
- HDL cholesterol, 1.6 mmol/L
- LDL cholesterol, 5.0 mmol/L
- glucose, 5.1 mmol/L
- creatinine, 81 μ mol/L.

How should the GP interpret and manage this scenario?

Based only on the information given in the case scenario, Miss JM's overall coronary risk seems low by virtue of the absence of other major risk factors and a favourable HDL cholesterol value. But she is manifesting a significant excess of LDL cholesterol. There may not be a strong case here for lipid drugs, but further diet and lifestyle advice seems to be in order.

Her GP offers some reassurance, suggests she increase her level of physical activity and also gives her a Heart Foundation chart describing a heart healthy diet. She is scheduled for more blood tests in six weeks' time and given a fixed appointment for clinical review.

Case scenario continued

Miss JM has been anxious about the matter and has followed the advice given very carefully. At clinical review six weeks later her total and LDL cholesterol values are only 0.2 mmol/L lower, other lipid values being unchanged (Table). Her diet was already favourable and left little room for improvement. In a purely statistical sense, none of the results of the repeat tests are significantly different. Her TSH level was normal (thus excluding hypothyroidism) and she had no evidence of proteinuria (thus excluding nephrosis).

The patient remains very anxious about her coronary risk and asks if she should receive treatment for cholesterol with a statin drug, as in the case of her work colleague.

Her GP is not convinced she needs a statin, and she does not qualify for statin drugs under current PBS subsidy criteria. Ultimately she is offered atorvastatin 10 mg daily as a 'private prescription', advised about potential side effects and asked to return in six weeks for reassessment.

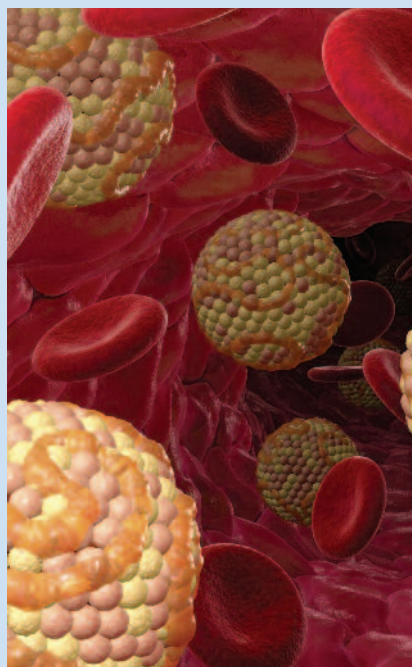
She returns for an urgent consultation three weeks later, complaining of mood

changes as well as a mild degree of myalgia in her arms and legs, even at rest. She is sent for blood tests and atorvastatin is suspended. Her blood test results are shown in the Table.

What is the diagnosis?

Miss JM's lipid profile has improved nicely and there are no apparent safety signals in other blood tests.

Lipid-soluble statin drugs such as simvastatin and atorvastatin readily cross cell membranes and the blood-brain barrier,



and although clinical manifestations of these actions are uncommon, the occasional onset of mood changes or muscle symptoms are well documented side effects of these drugs. A pretreatment creatine kinase (CK) reading can be helpful for comparison, but her CK level is not elevated. In fact, many patients who have myalgia when taking a statin have no diagnostic change in CK levels.

A diagnosis of statin-induced side effects is the most likely explanation here, given the nature of Miss JM's symptoms and their timing in relation to initiation of statin therapy. Other less likely diagnoses might have been a nonspecific viral illness, fibromyalgia, connective tissue disorders or onset of a psychological problem.

Case scenario continued

By the time of a further clinical visit seven days later, Miss JM's muscle symptoms have fully resolved and her mood swings are almost better.

She asks about future long-term management as she is not keen to return to a statin.

Under direct patient observation and using her pre-treatment values, her GP performs a calculation of her five-year absolute risk of cardiovascular disease on his desk computer. (It is acknowledged that there are limitations with the use of such calculators, but usage here could be of educational value). He inputs her age, sex, total cholesterol and HDL cholesterol levels, blood pressure reading, diabetes status and smoking status. Not surprisingly, her five-year risk is very low, only 1.5%.

What is the future management?

Miss JM's five-year absolute cardiovascular risk of 1.5% falls into the low-risk category. A five-year risk exceeding 15% (or exceeding 10% in the presence of a family history of premature cardiovascular disease in first-degree relatives or in the presence of the metabolic syndrome) is generally regarded as 'high risk', and is a strong indication for statin therapy.

At best, statin therapy might have reduced this patient's risk of cardiovascular disease from 1.5% to 1%. Although every person is at finite risk of coronary disease, statins were never strongly indicated in this patient. There seems little point in trying her on other drug therapy. Her GP's initial reluctance to prescribe statin therapy was fully justified. She is still best managed with diet and lifestyle advice and reassurance. The additional use of ω -3 fatty acids, folate or other supplements is not well supported by clinical trial evidence in a low-risk situation. Follow-up cholesterol testing should be delayed for several years. We need to be prepared to accept moderately elevated LDL cholesterol levels in situations of low cardiovascular risk. **CT**

COMPETING INTERESTS: None. The views expressed are purely those of the author.