

Statin side effects are strongest predictor of failure to meet cholesterol targets

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Statin side effects are the strongest predictor of failure to meet low-density lipoprotein (LDL) cholesterol targets, according to research published today in the *European Journal of Preventive Cardiology*. Other predictors were statin non-adherence and use of weaker statins.

"The beneficial effect of reducing LDL cholesterol on slowing the progression of coronary heart disease is overwhelmingly documented today in epidemiologic and randomised controlled studies," said lead author Dr John Munkhaugen, a cardiology trainee and post-doctoral researcher at Drammen Hospital, Norway.

"European guidelines recommend a blood LDL cholesterol goal of less than 1.8 mmol/l but just one in five cardiac patients taking lipid-lowering drugs achieve this," he added.

The NORwegian COR (NOR-COR) prevention project originates from the Department of Medicine at Drammen Hospital and is a collaboration between Drammen and Vestfold hospitals, and the Department of Behavioural Sciences in Medicine and Institute of Clinical Medicine, University of Oslo. It is investigating why patients fail to control risk factors including lipids and blood pressure after they have a cardiovascular event. This analysis examined the reasons why cardiac patients do not achieve the LDL cholesterol target.

The study included 1,095 patients hospitalised with a first or recurrent coronary event or treatment (heart attack, coronary artery bypass graft,

or coronary stent) who were identified from medical records at two Norwegian hospitals (Drammen and Vestfold). Sociodemographic, medical and psychosocial information was collected from medical records, an interdisciplinary self-report questionnaire, clinical examinations, and blood samples while patients were in hospital and at follow-up after two to 36 months.

The impact of potential barriers on achieving the LDL cholesterol target was calculated with LDL as a dichotomous (above or below 1.8 mmol/l) and continuous variable.

The researchers found that 57% of patients were not meeting the LDL target of 1.8 mmol/l at follow-up. Statin specific side effects (mainly muscle complaints), low statin adherence, and moderate- or low-intensity statin therapy were the main reasons for failing to meet the target.

Patients with side effects were more than three times more likely to miss the cholesterol target than those without side effects. Those who did not take their statins were three times more likely to miss the target than patients who did take them. Patients prescribed moderate- or low-intensity statins were 62% more likely to miss the target than those prescribed high-intensity statins.

"We found the same three reasons for not meeting the target when LDL was analysed as a dichotomous or continuous variable which confirms the strength of the associations," said Dr Munkhaugen. "Surprisingly, low socioeconomic status and psychosocial factors did not predict failure to control LDL cholesterol."

"The findings show that the focus for interventions to improve LDL cholesterol control are statin side effects, and adherence to and prescription of sufficiently potent statins," he continued.

Dr Munkhaugen said more research was needed on why side effects of statins had such a big effect on meeting cholesterol goals. "Patients who experience side effects are probably more likely to reduce or terminate statin use, or their doctor may prescribe a weaker drug or take them off statins altogether," he said. "Individual variations in how the body reacts to and uses the drug may also play a role."

The links between non-adherence and intensity of statin therapy on LDL cholesterol are likely explained by the pharmacological effects of the drug. "Not taking the prescribed amount of statins or being prescribed a weaker statin means there is less drug in the body to act and lower LDL," said Dr Munkhaugen.

"The reasons for statin non-adherence are a complex interaction between factors related to the patient and the healthcare system," he added. "Interventions aiming to improve statin adherence have been a priority in recent years, but the success has been modest and short-lived."

The study found that the use of high-intensity statins was significantly more frequent in [patients](#) who achieved the cholesterol target. But Dr Munkhaugen said: "The relationship with adherence and side effects needs to be clarified before advice can be given about the potency of statins that should be prescribed. Our findings point to the need for more research on ways to ensure adherence and prescription of sufficiently potent statins, while at the same time addressing [side effects](#)."

More information: John Munkhaugen et al. Medical and psychosocial factors and unfavourable low-density lipoprotein cholesterol control in coronary patients, *European Journal of Preventive Cardiology* (2017). [DOI: 10.1177/2047487317693134](https://doi.org/10.1177/2047487317693134)

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