Cholesterol-busting vaccine heralds end of daily statins

Chris Smyth Health Editor

A vaccine that offers hope of an alternative to daily statins is being tested in humans after successful animal trials.

The jab halved levels of cholesterol in the blood of mice fed a diet of fatty foods and reduced blood vessel damage by two thirds, preliminary tests showed.

Although general use is years away, scientists believe that the concept of an injection may be appealing to patients who do not want to take a pill every day. About seven million people in Britain take statins to lower "bad" cholesterol and bring down the risk of heart attacks and strokes.

However, many patients report side-effects when taking a daily pill and some GPs are sceptical about the concept of giving so many people drugs from which most will not benefit, raising concerns about the "medicalisation of normality".

Austrian scientists hope that an occasional injection could be a promising option. They have developed a molecule that stimulates the body's immune system to produce antibodies against an enzyme called PCSK9, which binds to the body's LDL cholesterol receptors and so reduces the ability to clear cholesterol from the blood.

Anti-cholesterol pills target the enzyme directly to boost the rate at which "bad" cholesterol is cleared and the jab is designed to make the body produce antibodies to do the same thing over the long term.

Falls in cholesterol were sustained at least four months after the injection, according to results published in the *European Heart Journal*.

Günther Staffler, technology chief at Affiris, the Austrian company that developed the jab, said: "If these findings translate successfully into humans, this could mean that, because the induced antibodies persist for months after a vaccination, we could develop a long-lasting therapy that, after the first vaccination, just needs an annual booster.

"This would result in an effective and more convenient treatment for patients, as well as higher patient compliance."

Dr Staffler, who carried out the study with colleagues at the Leiden University Medical Centre and Netherlands Organisation of Applied Scientific Research, added: "The reduction in total cholesterol levels was significantly correlated with induced antibody concentration, proving that induced antibodies caused the reduction in cholesterol."

A first-stage human trial is now under way in 72 patients and is expected to report this year. Success in at least two more rounds of trials will be needed before the vaccine would be considered for routine use.

Tim Chico, reader in cardiovascular medicine at the University of Sheffield, said that, while the research was at an early stage, "if similar effects were achieved in humans it would be likely to lead to a reduction in heart attacks. The theory is sound and I think this might have the potential to replace the need for regular cholesterol-lowering drugs."

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