

Statin users risk heart attacks by dropping treatment or taking low doses

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Thousands of statin users worldwide are suffering preventable heart attacks, simply because they are not complying with their treatment or are taking too low a dose, according to new research published online today (Thursday 7 December) in *European Heart Journal*.

These life-saving drugs, used to lower cholesterol levels in people at risk of coronary heart disease (CHD), can only be optimally effective if patients use them properly – and many are not.

That is the conclusion by the research team, who followed the prescription records of nearly 60,000 patients in the Netherlands for up to 14 years.

Dr Fernie Penning-van Beest and colleagues from the PHARMO Institute², the Utrecht Institute of Pharmaceutical Sciences and the Academic Hospital in Amsterdam, analysed 548,084 prescriptions of statin treatment issued over the first two years of treatment³ in 59,094 new users in the period January 1991-December 2004, and followed the patients until their first hospital admission for heart attack, death, or the end of the study in December 2004.

The aim was to see how effective robust statin treatment was for primary and secondary CHD in the ‘real world’ – as opposed to in clinical trials. Their results enabled them to calculate the absolute number of avoidable heart attacks that occurred because patients had stopped taking their drugs or were not taking them consistently. They were also able to

compare the preventive effects of different doses and types of statins.

Patients were divided into two groups – those at high risk of heart attack and those at intermediate or low risk, with over a fifth of patients (12,762) considered high risk.

They found more than half of all patients (31,557) stopped taking statins within two years and only just over a third (20,883) were persistent users on a high or intermediate dose.

Among persistent users, hospital admission for heart attacks fell by nearly a third (30%) compared to non-persistent users, in both primary and secondary prevention groups. In the primary prevention group, admission was down from 0.52 per 100 patient years among non-persistent users to 0.42 per 100 patient years in persistent users. In the secondary prevention group it was down from 0.86 to 0.62.

Among patients using the high or intermediate doses the risk reduction was as high as 40%, while a low dose reduced the risk by only 20%.

The researchers calculated that, every year, around 300 to 400 statin users in the Netherlands have an avoidable heart attack because of sub-optimal doses or discontinuing treatment. They believe the results are likely to be typical of Europe as a whole and of the USA, which means 7,000 to 9,000 Europeans and 5,000 to 7,000 Americans a year are suffering unnecessary heart attacks.

"What this clearly tells us," said lead researcher Dr Penning-van Beest, a research associate at the PHARMO Institute, "is that our observational study supports robust cholesterol lowering, as recommended on the basis of clinical trials. But, drugs are only really effective if they are used properly and persistently. Unfortunately, statins are not being used optimally, so thousands of people are having unnecessary heart attacks.

Getting users to stay on statins and to use them persistently saves lives, and doctors must get over to patients the message that complying with treatment is essential."

Different types of statins are used in different doses, so the researchers dealt with these differences by grading the five statins they assessed for equipotency (the dose of one type of statin needed to achieve the same effect as another type).

They found that as well as the largest reduction in heart attacks needing hospital admission being among patients consistently taking the drugs over the whole two-year period at persistently high or intermediate equipotent doses, these patients were also relatively more likely to be using second generation statins i.e. atorvastatin or rosuvastatin, rather than the first generation types, pravastatin, fluvastatin or simvastatin. Higher doses of first generation statins were being prescribed, but increasing the dose of these older statins is limited by the maximum safe dose.

Co-author Dr Ron Herings, scientific director of the PHARMO Institute and associate professor of pharmacoepidemiology at Utrecht University, said: "It is preferable to achieve a high equipotent dose by using the new, highly potent statins. But, the new statins have considerable economic impact on pharmaceutical budgets and the opposite trend is being encouraged in the Netherlands and Germany, where reimbursement measures promote the use of relatively inexpensive generic older types."

He said: "This is fine, as long as guidelines for higher doses of these older statins are implemented, and bearing in mind that there may be limitations to giving the highest doses. But, restricting the use of older generic statins to standard low doses will make the problems worse.

"Ideally, to improve the population effectiveness of statin treatment,

persistent drug use and the use of new, potent statins, should be encouraged." he concluded.

Source: European Society of Cardiology

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