Statin prescribing: is the reality meeting the expectations of primary care?

The results of a dual survey looking at statin prescribing in UK general practice give an interesting insight into treatment goals and patterns.

Abstract

Two surveys were carried out to look at statin prescribing in UK general practice. The first was a study of the Mediplus prescribing database in relation to coronary heart disease (CHD) patients prescribed a statin. The second was a postal survey of the attitudes and beliefs about statin prescribing among general practitioners (GPs) who had contributed to this database. Results showed that despite 80% of GPs believing they had achieved target cholesterol levels (≤ 5 mmol/L) in 80% of their CHD patients, this was initially only achieved in 65% of patients, rising to 78% after titrations and switching. Only 46% of patients achieved a cholesterol reduction of 25%, which increased to 56% after titrations and switching.

Key words: statins, National Service Framework, coronary heart disease, guidelines, cholesterol.

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Table 1. Achievement of cholesterol targets among coronary heart disease patients in survey

Group	N Subjects	N (%) of group reaching target 5 mmol/L	25% reduction
All subjects analysed	8,434	5,516 (65.4%)	3,888 (46.1%)
Titrated once	730	495 (67.8%)	444 (60.8%)
Titrated twice or more	162	83 (51.2%)	105 (60.8%)
Titrated and switched	230	131 (57.0%)	149 (64.8%)
Switched not titrated	586	406 (69.3%)	329 (56.1%)
Any titration or switch	1,478	1,084 (73.3%)	878 (59.4%)
% of total subjects who eventually reach target		6,600 (78.3%)	4,766 (56.5%)

Introduction

Use of statins saves lives. This is incontrovertible from the evidence accumulated from the major trials in people at risk of cardiovascular events. In the present study we carried out a dual survey to determine whether high-risk patients with established coronary heart disease (CHD) were being treated optimally, on the basis of national guidelines.[1] This study was in two parts: i) a study of the Mediplus prescribing database of 80,000 patients of all ages with established CHD, of which 8,434 were on a statin and had received pre-treatment and post-treatment tests, sampled from May 2000. We examined these data up until December 2002, before the availability of rosuvastatin or ezetimibe, to see whether cholesterol targets were being met using statins available during that time and to determine patterns in statin prescribing. ii) At the same time, a postal survey of the general practitioners (GPs) who had contributed to the Mediplus database was carried out to examine their attitudes and beliefs about their own statin prescribing. The dual surveys show the difference between expectation and actual achievement in statin prescribing in UK general practice.

> ***'Use of statins saves lives'***

Methods

Statin prescribing data of 8,434 individuals with an established diagnosis of CHD were examined using the Mediplus database. In this database, patient visits, statin prescribing and cholesterol levels are recorded by the general practitioner. These data were studied to see whether the National Service Framework for coronary heart disease cholesterol targets were being met.[1] Statin therapy should reduce serum total cholesterol to < 5 mmol/L or by 25%, whichever results in the lowest achieved level, to satisfy the national guidelines. In January 2003 we sent a questionnaire to general practitioners who were registered with the Mediplus database. The views of the 221 responders are described below. Firstly, the table shows the actual achievement of cholesterol targets among 8,434 CHD patients.

The table shows that success in lowering patients' cholesterol levels to < 5 mmol/L is achieved at the first dose of statin in 65% of patients, eventually being achieved by titrations or switching in 78% of patients. Applying the more rigorous guideline of reducing

Figure 1. Management of patients who did not reach the < 5 mmol/L target (base n=2,918)

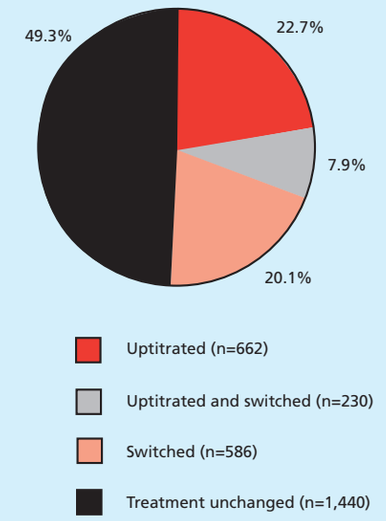
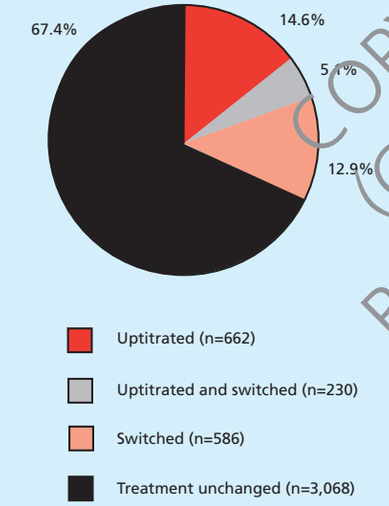


Figure 2. Management of patients who did not reach the 25% reduction target (base n=4,546)



total cholesterol by 25%, only 46% of patients achieve this at the starting dose of statin, rising to only 56% after further titrations or switching statins.

Figures 1 and 2 show what actually happened to statin prescribing among these patients who did not reach target.

This is in contrast with the beliefs expressed in the 221 replies to the questionnaire postal survey. General practitioners believed that they would achieve target cholesterols in 80% of their patients. Interestingly, when asked what they would do with patients who failed to reach targets, GPs said that they would uptitrate (in dose) in about half the patients, switch to another statin in 21.5% of cases and, surprisingly, would continue the unsuccessful therapy in 23.2% of cases.

Discussion

There are several messages from this study. Firstly, there is a failure to adopt the criterion requiring a 25% reduction in total cholesterol. Major statin trials such as the Heart Protection Study[2] have shown that patients who have a substantial fall in cholesterol may cut their risk significantly. Dose titration steps and switching between statins resulted in only modest improvements in achievement of target. This may reflect caution and a reluctance to use high doses or newer statins that provide a greater reduction in cholesterol, although evidence from clinical trials indicates that this is required.[3]

It is interesting that when general practitioners are asked to estimate their own performance there is a belief that 80% of patients will be successfully treated. This is evidently a long way from the results achieved by analysis of actual individual patient data. At least part of this failure is that nearly a quarter of patients who do not reach target have neither their statin dose increased nor are switched to an alternative drug. With new European Guidelines recommending more stringent cholesterol targets of 4.5 mmol/L for total cholesterol and 2.5 mmol/L for low-density lipoprotein (LDL) cholesterol, this gap in performance could grow wider. Even more alarming is the discussion to introduce in 2006 for the UK, targets of 4.0 mmol/L total cholesterol and 2 mmol/L LDL cholesterol.

> ***'There is a compelling need for greater awareness of the importance of aggressive cholesterol lowering'***

Statin treatment in the UK is widespread and improving but data up to 2003 has shown success in only about half the patients. Dose titration provides modest improvements and has not been a success, reflecting the continued high usage of low doses of older statins that will not achieve targets. Doubling the dose of a statin will only reduce cholesterol by a further 8%.[4] Even when dose titrations or statin switching is employed, only about half of these patients will achieve target, particularly if a 25% reduction is sought. There is therefore a compelling need for greater awareness of the

Key messages

- Major clinical trials have shown that the use of statins saves lives
- Many coronary heart disease patients are not being optimally treated with statins
- The guideline of achieving a 25% reduction in total cholesterol is not being adopted
- There is a difference between expectation and actual achievement in statin prescribing in UK general practice

importance of aggressive cholesterol lowering if we are to meet nationally recommended targets.

Conflict of interest

AB has received lecture fees from statin manufacturing pharmaceutical companies. He has received research grants from AstraZeneca and Merck Sharp & Dohme. He is lead UK investigator for IMPROVE-IT, a major trial funded by Schering Plough and Merck Sharp & Dohme. IF and JN have had consultancy agreements, research support, honoraria and travel grants from pharmaceutical companies who make statins.

References

1. Department of Health. National Service Framework for Coronary Heart Disease. London: The stationary office, March 2000 (SWI) 16602 1P 30 K.
2. Heart Protection Study Collaborative Group. MRC/BHF Heart Protection Study of cholesterol lowering with simvastatin in 20,536 high-risk individuals: a randomized placebo-controlled trial. *Lancet* 2002;**360**:7-33.
3. Brady AJB, Betteridge DJ. Prevalence and risks of undertreatment with statins. *Br J Cardiol* 2003;**10**:218-20.
4. Jones P, Kafonek S, Laurora I, Hunninghake D. Comparative dose efficacy study of atorvastatin versus simvastatin, pravastatin, lovastatin, and fluvastatin in patients with hypercholesterolemia (The CURVES Study). *Am J Cardiol* 1998;**81**:582-7.

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