

Improving the Use of Lipid-lowering Drugs at Brits Hospital

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ABSTRACT

Background

When it was found by the Brits Hospital Pharmacy and Therapeutics Committee (PTC) in 2000 that simvastatin was responsible for extremely high costs in a district hospital, it was decided to undertake a quality improvement study to assess and, if appropriate, rectify the situation.

Methods

A Quality Improvement team was chosen, standards of care were set in relation to national and international standards and a baseline survey was undertaken. The survey was done by taking the files of 50 patients on lipid-lowering drugs (LLDs) and looking at their patient profiles, e.g. smoking, diabetes, use of Premarin®, etc. The team found a gap between best practice as spelt out by the standards set and the reality. A plan of action was then formulated and put into action for six months, after which the survey was repeated with another 50 patients. The total number of patients on LLDs, as well as the cost to the hospital per month, was also calculated.

Results

It was found that 147 patients (50 files were selected on a monthly basis out of the 147 patients) were taking LLDs and that there was hardly ever information regarding body mass index (BMI), family history, diet, smoking and other supportive information in the file. The cost per month was R14 570,50, and most of the patients had had treatment initiated by general practitioners.

The plan of action included that all the above preventive measures were noted in the files after discussions with patients, the use of the national guidelines to decide who really qualified for LLDs, and the exploration of the possibility of cerivastatin as a cheaper option to simvastatin.

As a result of this process, the number of patients qualifying for simvastatin fell to less than 30, with the associated costs falling to R3 122,00.

Conclusion

We found the quality improvement process to be a powerful tool for change when using relevant evidence in order to change a specific situation. (*SA Fam Pract* 2004;46(1): 21-24)

Introduction

Hypercholesterolaemia has implications regarding both patient morbidity and mortality^{1,2} and therefore has a substantial impact on the health sector in terms of health care and other costs.

Many studies have recently been done on this phenomenon and on lipid-lowering drugs throughout the

world, especially in so-called first world countries. Although hypercholesterolaemia and ischaemic heart disease are not as common in South Africa as other killer diseases, such as tuberculosis, HIV/AIDS and kwashiorkor, there are geographical areas where it does have a significant impact. In 1999, it came to the attention of the therapeutics committee

at Brits District Hospital that simvastatin 20 mg and 10 mg were taking the top 3rd and 4th positions in the drug expenditure list. As not much was known about the criteria for starting and maintaining patients on lipid-lowering drugs, it was decided to undertake a quality improvement project regarding the whole issue.

Brits Hospital is a district hospital serving 22 clinics and 350 000 people. Two of the clinics have mostly older white patients, many of whom are smokers, diabetics and hypertensives. Until 1994, all patients needing tertiary care were seen at a nearby academic hospital, where they were provided with their medicine. Since then, patients have gradually been referred back to local hospitals for their medication. Currently, with tightening budgets and the provincial Essential Drugs List (EDL) that does not accommodate lipid-lowering drugs except with a motivation, we would like to focus on the patients who would really benefit from this treatment.

Most of the newest literature indicates that there is no significant benefit in using statins for primary prevention.^{3,4,5} There is, however, very strong evidence that they and the fibrates have an impact when used for secondary prevention,^{6,7,8,9} e.g. for patients with established cardiovascular disease or patients at high risk for coronary heart disease. These would include patients with two or more risk factors, such as smoking, high cholesterol, diabetes, hypertension, central obesity, menopause or premature coronary disease (younger than 55 years) or with physical signs of dyslipidaemia, e.g. premature arcus senilis, xanthelasma and others. It does not seem possible to lend a significant amount of weight to the popular idea that "if it's in the family, drugs are necessary".

When faced with the choice of statins, there is currently no evidence to show that one statin produces greater clinical benefits than another, but they do have different effects on total cholesterol, LDL, HDL and triglycerides^{10,11,12} The cost of simvastatin per month (20 mg x 28 days) at the time of the study was R169,18. The monthly cost of the only other well-researched statin, Pravastatin, was R211,00 for 20mg. At the time of the study, Baycol (cerivastatin) had newly entered the market (also for provincial use). Its cost was R79,00 per month for the 4 mg tablet. It was subsequently removed from the market because it was found that many

practitioners combined fibrates and cerivastatin, with severe adverse effects.

Methods

The quality improvement cycle

1. Introduction

In order for standards to be reached in a period of months, a quality improvement cycle (Table I) rests on the pillars of a very participative team, national or international standards being identified for the particular topic, a quantitative or qualitative measurement of the current situation and a plan emerging from the above.

The team included a local pharmacist, a family physician who was on the therapeutics committee, the head of the Department of Family Medicine, Medunsa and a research assistant. Information was circulated among the team members and conclusions were discussed together.

2. Standards

The following **standards were set** and assessed one year after completion of the first phase:

- 80% of patients who qualified (according to the national guidelines) for treatment had to be on lipid-lowering drugs
- all patients who were currently on lipid-lowering drugs but did not qualify had to be removed
- 100% of patients who are using LLDs had to have a cholesterol/triglyceride blood result in their file that was less than one year old
- 100% of patients on LLDs had to have a diet sheet
- 100% of patients on LLDs had to be weighed every six months and have their BMI/waist measurement recorded in the file
- All patients had to stop smoking and have advice to do so recorded in their file
- All patients with other diseases that have an impact on ischaemic heart disease had to be well controlled (diabetes/hypertension/hormone replacement)

3. Status of patients

The **current status** of patients was assessed by taking 50 files from

the hospital outpatient department and one of the clinics and evaluating certain variables retrospectively.

The emphasis in this study was mainly on the effects of rationalising drug treatment. Part of the plan included discussing obesity, smoking and diet. Evidence has recently been published¹³ showing that, with a strongly motivated team that includes the patient and encompasses diet and lifestyle modification, medication can be stopped altogether. Currently available diets have become more user friendly and can be applied to any patient with a chronic condition (the so-called "prudent diet"), as well as being used as a preventative strategy in high risk populations.¹⁴

Results

1. Demographics

The initial findings of the patient demographics were as follows as is reflected in Figures 1 and 2: Male/female: 28%/72%
Afrikaans speaking: 98%
Average age: 55 years

Figure 1. 1st Study - Gender (n = 50)

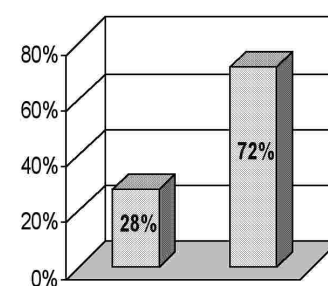
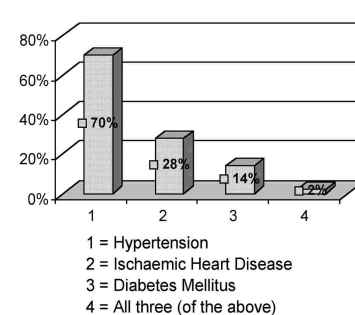


Figure 2. 1st Study - Associated Diagnoses

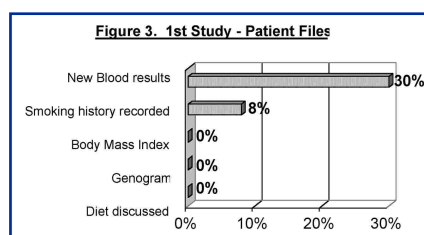


2. File information

No body mass indexes or genograms indicating family history were included in the files. There was no

indication of diet having been discussed and only 8% of files had the smoking history of the patient noted. Only 30% of the files contained blood results that were newer than one year. Figure 3 reflects these findings.

The number of patients on lipid-lowering drugs was 147, with an average cost of R14 570,50 per month.



3. Plan

As a result of the above information and taking the standards into consideration, the following **plan** was drawn up:

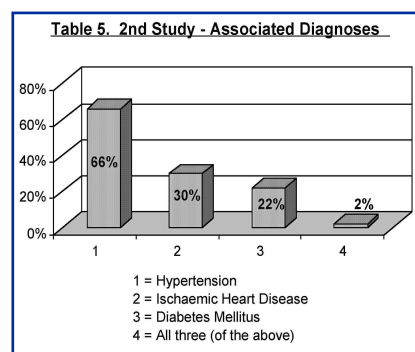
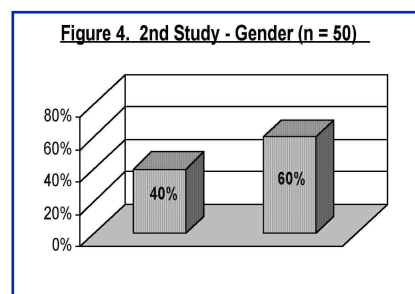
- (i) A protocol was adopted and made available at the Brits Hospital outpatient department and at the relevant clinics. The protocol requested that the patient's history, current diseases, habits and body mass index (BMI) should be noted at each visit. This meant that there had to be a height and weight measurement available at these points as well as a BMI chart.
- (ii) A simple diet sheet was drawn up, based on information from a dietician and Heart Foundation guidelines.
- (iii) All patients who did not qualify to continue using LLDs were to be given an explanation and would also receive a diet sheet and be offered an annual blood test.

4. Re-evaluation

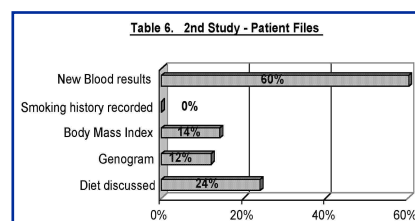
We evaluated the effects of the interventional plan at the end of 2000 by checking how many of the original study population were still receiving LLDs, how many had documented results and BMI measurements, whether their related diseases were well controlled and how many were following dietary guidelines. Together with this, we asked the staff of the pharmacy to re-evaluate the costs

at our hospital to see whether or not there had been an improvement.

The demographics had not changed much. However, as indicated in Figure 4 and 5, there had been a statistically significant improvement in the health information found in the files.



The smoking history of the patients had deteriorated – no files indicated new smoking history, but the diet sheet was included in 24% of the files, the BMI recorded in 14% of the files and new blood results in 60% of the files. All these figures were an improvement.



Most significant was that the number of patients who qualified for LLDs according to the national guidelines had fallen from 147 to 30 and the costs from R14 570,50 per month to R3 122,25 per month.

5. Discussion

While the use of LLDs was being assessed, we also re-evaluated all our motivational drugs (which normally may only be prescribed by

specialists at a tertiary facility) and, during the course of the year, replaced 50% of motivational drugs with drugs that could easily be accessed through the EDL. There was therefore an unforeseen additional positive spin-off from the process.

Apart from the significant fall in costs, a further financial saving was being explored by negotiating with the Provincial Pharmacy and Therapeutics Committee to change all patients on simvastatin to cerivastatin, which was considerably cheaper. Cerivastatin was subsequently removed from the market due to problems experienced in other countries.

An interesting discussion that emerged was that of family genograms and, consequently, this was introduced as part of the ordinary work of the family physician. Three of the patients who did not qualify in terms of the protocol had such a very strong family history, plus signs of xanthelasma and worsening angina, that the genogram¹⁵ was used as an additional instrument in decision making and these three patients were provided with the drug. It is important to use a protocol and a guideline strictly, but also to rely on clinical acumen in decision making.

The holistic management of chronic disease was not well reflected in the study. However, it is extremely important that this must be considered, as a change in diet alone could lead to a significant decrease in the use of drugs. It was found that patients needed to be consulted and informed very well of the relative worth of medication as compared to other lifestyle issues. Many patients felt very insecure when they were informed that they did not "qualify" for drug treatment. However, most of them accepted the change when they were made aware of the advantages and the fact that they would be monitored. As from 2003, the hospital has a community service dietician who has played a large role in assisting the doctors with information and encouragement.

Conclusion

The process followed led to a major saving in costs and, in addition, we

Table I: QUALITY IMPROVEMENT PROCESS**1. Choose the Topic**

- Define the problem
- Describe the topic
- Describe how the topic was chosen

2. Form the Team

- Describe how the team is formed and the topic is finally formulated and agreed to in a participatory way.
- List the names of the team members, their role in the team and their role in the quality improvement cycle
- Describe what went right and successes in team formation. Aren't these two the same?
- Describe difficulties in team formation.

3. Set Standards

- Describe the standards that you want to use for acceptable practice.
- List the resources, e.g. books, articles, guidelines used to set the standards

4. Measurement of Present Practice/Implementation Plan

- State how the standards are measured.
- Define the variables.
- Present the results in a meaningful way, e.g. tables, graphs, pictures.

5. Evaluation of Practice/Plan Implementation

- Evaluate the results in terms of the standards set.
- Describe how the team looked at the results and what they thought about them.
- Describe the understanding that came out of the evaluation.

6. Plan for Change or Plan for Adaptation

- Describe the plan that was drawn up in the light of the standards, the measurements and the evaluation.

7. Implementation of Plan

- Describe the implementation of the plan and the measurement of the change in performance.

8. Process of Quality Improvement Cycle

- Describe what was going on throughout the whole process of the quality improvement cycle. Include what went right, what went wrong and any surprises.
- Describe the gains and pains for the individuals, the team and the patients.

9. Conclusion**10. Comments and Signatures from Team Members**

- Give the report, including the conclusion, to some of the team members who are not students.
- Ask them to write comments and sign. The report actually belongs to the team.
- Make a good copy for use by the team.

managed to rationalise treatment to those who need it the most. This information might be useful for the many traditionally white hospitals that still deal with an aged white population and which have inherited similar problems.

The efficient use of limited resources is one of the family physician's tasks.¹⁶ Many of the patients seen were already on a number of drugs and for the physician to be able to concentrate on smoking cessation, diet, etc. instead of on drugs was also worthwhile in terms of compliance and good prescribing behavior.

The methodology was proof of the powerful nature of a quality improvement exercise and has encouraged us as a district hospital to initiate nine other projects.

The results of this study have been presented to the North-West

Province so that the guidelines can be used on a wider scale.✉

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