

Over 1.3 million people in England have been diagnosed with diabetes. The frequency of diabetes is higher in men than in women; however women with diabetes are at relatively greater risk of dying than are men. The main risk factors for people developing diabetes are: physical inactivity, being overweight or obese, family history of diabetes, and being of Asian or African Caribbean descent. Diabetes is the leading cause of renal failure, the second commonest cause of lower limb amputation and the leading cause of blindness in people of working age. Life expectancy is reduced, on average, by more than 20 years in people with type 1 diabetes and by up to 10 years in people with type 2 diabetes.¹

Prescribing of insulins and oral antidiabetic drugs has continued to grow over the last 5 years (charts 1 & 2). Cost has risen by 134% to £60.7 million while the number of items has increased by 80% to 3.8 million (quarter to March 2003).

The delivery strategy of the National Service Framework (NSF) for Diabetes, published in November 2002, focuses on improving treatment of people with diabetes and provides a framework for delivering the NSF standards. One of its aims is to reduce the incidence of type 2 diabetes.¹ The increase in type 2 diabetes reflects the rise in the number of obese or overweight people. Obesity is a major risk factor that should be tackled through patient education, using programmes to promote healthy eating and exercise. If these measures do not result in sufficient weight loss, drug therapy with orlistat or sibutramine could be tried in patients who meet the National Institute for Clinical Excellence (NICE) guidance criteria. Screening of people with multiple risk factors for diabetes may be useful to identify individuals with previously undiagnosed disease. The evidence base is not clear on which high risk groups should be offered screening for type 2 diabetes and which screening test to use. The UK National Screening Committee is investigating this further and will provide advice on targeted screening in 2005. The NSF delivery strategy identifies practice-based registers as critical for patients with diabetes and/or coronary heart disease (CHD) to receive appropriate care in line with NSF standards. One of the quality indicators in the new General Medical Services contract is that the practice has a register of all patients with diabetes. Other quality indicators cover the ongoing management of patients.

NICE have produced clinical guidelines for type 2 diabetes in the following areas: blood pressure management, blood glucose management, lipids management, renal disease – prevention and early management, and retinopathy. They have also completed technology appraisals on pioglitazone, rosiglitazone, insulin pump therapy, long-acting insulin analogues and patient education models.²

Blood pressure management

It is probably more important to reach target blood pressures than target HbA_{1c} levels and lower blood pressures are often easier to achieve than strict control of blood glucose. The UKPDS showed that tight control of blood pressure in patients with hypertension reduces the risk of deaths related to diabetes and non-fatal diabetic complications.³ Patients with blood pressure sustained above 140/80mmHg and either a history of cardiovascular disease or a 10 year coronary event risk over 15% or microalbuminuria/proteinuria should receive antihypertensive therapy. A blood pressure of 140/80mmHg should be the target unless the patient has microalbuminuria when the target is 135/75mmHg. NICE guidelines recommend thiazide diuretics, beta-blockers, ACE inhibitors and angiotensin II receptor antagonists as first choice for patients without albuminuria. For those patients with microalbuminuria or proteinuria ACE inhibitors should be the first choice.² The prevalence rate for microalbuminuria in type 2 diabetes is around 25% and for proteinuria 19%.⁴ The predictive value of the presence or absence of microalbuminuria and proteinuria for progression to end stage renal failure is not particularly strong. Care for patients with raised albumin is set out in NICE guidelines for the prevention and early management of renal disease where albumin excretion is classified into lower or higher risk.²

Glycaemic control

Strict control of blood glucose in type 1 or type 2 diabetes reduces development and progression of microvascular and neuropathic complications. The number of macrovascular events is also reduced by intensive glycaemic control but there is no significant effect on the number of people who develop macrovascular disease.⁵ NICE clinical guidelines for the management of type 2 diabetes suggest that HbA_{1c} levels should be between 6.5-7.5% according to individual risk of microvascular and macrovascular complications.² Lifestyle interventions such as weight loss are important in patients who are overweight or obese. Metformin is recommended as first line drug therapy in type 2 diabetes in overweight patients, adding a sulphonylurea to metformin if blood glucose remains uncontrolled. If metformin is contraindicated a sulphonylurea should be tried initially. Pioglitazone or rosiglitazone could be added to either metformin or a sulphonylurea after trying the latter drugs alone and in combination. Self-monitoring of blood glucose is of most benefit for patients with type 1 diabetes. Whether blood testing is better than urine testing in type 2 patients and the optimum frequency for self-monitoring are unclear.⁶

Lipid management

The risk of cardiovascular morbidity and mortality increases in patients with diabetes: factors associated with a higher risk include poor glycaemic control, proteinuria and microalbuminuria, as well as the standard CHD risk factors. Total cholesterol and LDL-cholesterol levels are similar in people with and without diabetes. Starting statin therapy is not recommended unless serum cholesterol concentrations are raised with total cholesterol greater than or equal to 5mmol/l (or triglycerides greater than or equal to 2.3mmol/l).²

Data from the Heart Protection Study has recently been published examining cholesterol lowering in patients with type 2 diabetes.⁷ In this study 5,963

patients with diabetes (90% type 2) were compared to 14,573 patients with occlusive arterial disease but without diagnosed diabetes. 49% of the patients with diabetes had no history of any arterial disease. Patients received either 40mg simvastatin or placebo. The first event rates for major coronary events, for strokes and for revascularisations were all reduced by about a quarter in both patients with diabetes and in those without. Among the types of patient with diabetes included in this study, treatment for 5 years would be expected to prevent about 80 per 1,000 patients from having at least one major vascular event.

Aspirin

NICE guidelines advocate using aspirin in patients with a 10 year coronary risk greater than 15% and those with existing cardiovascular disease.² Most people with diabetes and hypertension should therefore be taking aspirin.

Prescribing data

Table 1: Changes in Prescribing of Drugs and Equipment for Diabetes in the Last 3 Years

| | Items (millions) | | | Net Ingredient Cost (£millions) | | |
|--------------------------------------|------------------|----------|----------|---------------------------------|----------|----------|
| | Quarter to | | % Change | Quarter to | | % Change |
| | March-01 | March-03 | | March-01 | March-03 | |
| Short-acting insulins | 0.17 | 0.20 | 16% | 6.67 | 9.34 | 40% |
| Intermediate- & long-acting insulins | 0.59 | 0.69 | 18% | 20.50 | 29.07 | 42% |
| Oral antidiabetic drugs | 2.31 | 2.91 | 26% | 13.98 | 22.28 | 59% |
| Blood glucose testing strips | 0.89 | 1.21 | 36% | 19.16 | 28.23 | 47% |
| Hypodermic equipment | 1.05 | 1.34 | 28% | 7.72 | 10.43 | 35% |

Table 1 summarises the prescribing of drugs and equipment to treat diabetes. Items for short-acting and intermediate- and long-acting insulins have increased by 16% and 18% respectively with cost rising by around 40% for both. In the quarter to March 2003, 29% (57,000) and 26% (52,000) of short-acting insulins items are for insulin lispro and insulin aspart respectively. The cost of these per quarter is £3.1 million (33%) for insulin lispro and £2.5 million (27%) for insulin aspart. Intermediate- and long-acting insulins account for 78% of all insulin prescribing. Insulin glargine (introduced in 2002) has prescribing of 42,000 items (£2.2 million) for the quarter to March 2003. Biphasic insulin lispro and biphasic insulin aspart have prescribing of 66,000 (£3.5 million) and 27,000 items (£1.2 million) respectively for the same period.

Blood glucose testing strips have increased by just over a third in items and account for 88% of all monitoring agents. Their cost has doubled in the last 3

years to £28 million (quarter to March 2003), which is higher than spending on oral antidiabetic drugs (table 1). Prescribing of hypodermic equipment has increased by 28% over the last 3 years while the cost for this group of products has risen by 35%.

Metformin prescribing accounts for 49% of total prescribing of oral antidiabetic drugs and 19% of cost. Its prescribing has increased by 155% over the last 5 years to 1.4 million items (quarter to March 2003) at a cost of £4.3 million. Prescribing of sulphonylureas remains fairly static at 1.2 million items per quarter (£9.6 million). Gliclazide is the most commonly prescribed sulphonylurea (902,000 items and £7.1 million, quarter to March 2003). Gliclazide accounts for 31% of total oral antidiabetic drug prescribing and 32% of costs. Prescribing of glibenclamide has halved in the last 5 years (135,000 items and £0.5 million per quarter). Prescribing of rosiglitazone and pioglitazone has increased to 118,000 and 40,000 items per quarter at costs of £5.5 million and £1.7 million respectively. These two drugs represent 32% of the cost for all oral antidiabetic drugs but only 5% of the prescribing. Repaglinide and nateglinide prescribing has reached 24,000 and 13,000 items per quarter respectively at costs of £372,000 and £312,000.

Across English PCTs there is a 5-fold variation in spending on oral antidiabetic drugs (NIC per 1,000 oral antidiabetic STAR(01)-PUs). The median value is £390 per 1,000 oral antidiabetic STAR(01)-PUs (interquartile range 340 – 464). Higher spending is occurring in PCTs with a higher population of non-whites.

References

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Summary

- **The prevalence of diabetes continues to increase and in the case of type 2 diabetes reflects the rise in obese and overweight people**
- **The NSF delivery strategy focuses on setting up local diabetes networks to deliver the standards and targets set out in the NSF**
- **Metformin is the first line choice to lower blood glucose in patients with type 2 diabetes who are overweight**
- **NICE do not recommend pioglitazone or rosiglitazone first line in type 2 diabetes**
- **Tight control of blood pressure reduces the risk of diabetic complications and death due to diabetes**
- **Statin therapy reduces the risk of major vascular events in selected patients with diabetes**