Insulin and normal eating

Dose adjustment for normal eating (DAFNE) has been described as a radical approach to educating people with type 1 diabetes (Saunders, 2003). It is a trial that has been running in the UK for more than two years and is now being rolled out to a handful of centres around the country including Leicester, where the author works. The approach was originally developed in Germany and has formed the basis of care for patients with type 1 diabetes for the past 20 years.

What does DAFNE involve? A group of eight patients attend a five-day training course as outpatients. Two educators facilitate group learning and ensure that the information is patient-centred. Patients learn to adjust their insulin on a meal-by-meal basis according to their carbohydrate content. They also learn about managing their diabetes when they are ill, if they drink alcohol or do exercise.

A valuable part of the experience is a daily group discussion of each patient’s blood monitoring results where patients encourage and learn from each other and decide what adjustments they wish to make.

The DAFNE Study Group, consisting of health professionals from Sheffield, Northumbria and London (the three original centres funded by Diabetes UK to trial the German type 1 diabetes education program in the UK) published their initial evaluation of the first DAFNE courses last year (DAFNE Study Group, 2002).

The DAFNE study The aim of the study was to evaluate whether a course that taught flexible intensive insulin treatment can improve glycaemic control and quality of life for inpatients with type 1 diabetes.

Method Patients were recruited by letter and were considered eligible if they were aged over 18 years and had clinical features of type 1 diabetes, moderate to poor control (HbA1c (glycated haemoglobin) 7.5–12 per cent) and had diabetes for more than two years without advanced complications. Patients were randomly assigned to attend either an immediate DAFNE training course or act as controls and have their training delayed for six months.

This method provides a control group and a crossover group, as the control group becomes the intervention group. The patients were likely to have been well motivated at the outset and may have been dissatisfied with their current treatment leading them to volunteer. Having had some information about the training in order to give their consent, patients may have become more motivated may have begun to adapt their management to reflect DAFNE principles.

The researchers used validated tools to determine the effect of DAFNE on quality of life and HbA1c to assess the affect on glycaemic control.

Key findings The key findings of the study were:

- A clinically important mean improvement in HbA1c of one per cent after six months which fell to 0.5 per cent after one year;
- No significant difference in hypoglycaemic episodes;
- A significant improvement in the impact of diabetes on quality of life;
- A significant improvement in ‘present quality of life’ at one year;
- Psychological well-being and satisfaction with treatment also improved despite an increase in the number of daily injections from three to five;
- No changes in blood pressure, cardiovascular risk factors or weight.

The study group has shown that a model of care can be taken from another European country, adapted and used in different health districts in the UK to improve glycaemic control and quality of life.

The DAFNE debate It is not clear exactly why DAFNE works. It most certainly has something to do with the feel-good factor. Patients get a ‘super deluxe’ service with intense uninterrupted input from two health professionals for a whole week. One could argue that this alone could precipitate the one per cent improvement in HbA1c and the subsequent reduction in improvement to 0.5 per cent once this input is reduced.

Support and encouragement from others with type 1 diabetes plays a key role and recruits have been well motivated.

It is possible to suggest that the results are a little disappointing in that we may have expected a more dramatic improvement in glycaemic control. It is interesting to note that although patients are given the green light to eat what they wish, this has not resulted in an increase in body weight and associated increase in blood pressure and cardiovascular risk factors.

Perhaps the most interesting and exciting result from this work is the improvement in quality of life. While clinical outcomes are obviously important, it is equally important to patients how they live day to day with a chronic disease (Wolpert and Anderson, 2001). From a professional point of view we receive very good feedback from patients, so it is very rewarding.

There are a number of ways to manage insulin and diet and DAFNE is only one option that works. The results of the roll-out study are now being eagerly awaited.