How to maintain optimal glycaemic control in diabetes

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Despite national and local guidelines for glycaemic control, current management of glycaemia can fall significantly short of accepted goals. This article discusses the recommended glycaemic control goals and barriers that can prevent their achievement. It examines key recommendations to enable health care providers to overcome these barriers.

In 1998, the UK Prospective Diabetes Study (UKPDS) identified that intensive glycaemic control reduces the risk of diabetic complications. Since then many local and national treatment algorithms and guidelines have been developed including those by the Department of Health (2002), National Institute for Clinical Excellence (2001) and Scottish Intercollegiate Guidelines Network (2001).

Despite this the Global Partnership for Effective Diabetes Management suggests that at least 60 per cent of patients do not reach their glycaemic control goals. This control is vital to prevent the development of serious micro and macrovascular complications, which impair quality of life and impose a heavy burden on health care systems. The importance of good glycaemic control in diabetes therefore cannot be underestimated.

Glycaemic control

UKPDS established the importance of glucose control to prevent vascular complications in people with type 2 diabetes. However, there is no consensus on the desirable level of glycaemic control that needs to be achieved and therefore no consistent universal glycaemic target recommendation (International Diabetes Federation, 2005).

Targets have been set by a number of organisations. In 2001, the SIGN guidelines recommended good glycaemic control as an HbA1c of around 7 per cent. The NICE (2002) guidance for type 2 diabetes recommends a target HbA1c of 6.5–7.5 per cent, while more recently, NICE guidance for type 1 diabetes recommends targets of 7.5 per cent or lower and 6.5 per cent or lower for those at increased risk of arterial disease.

However, there is a substantial body of evidence indicating that a target of 6.5 per cent would have significant benefits in minimising the risk of diabetic complications (IDF, 2005). This translates into self-monitored equivalent target levels for capillary plasma glucose levels of <6.0mmol/L before meals and <8.0mmol/L 1–2 hours after meals (IDF, 2005).

Measuring control

Frequent monitoring of glycaemia is essential for effective management, particularly in patients with newly diagnosed type 2 diabetes. Regular assessment of glycaemia should lead to more proactive management of diabetes.

However, monitoring is often perceived to be time-consuming and requires considerable motivation from both patients and health care professionals (Del Prato et al, 2005).

The NICE (2004) guidance recommends that HbA1c should be measured every two to six months. Patients who are aware of their own HbA1c value can more accurately assess their diabetes control and have a better understanding of diabetes care (Del Prato et al, 2005). NICE (2004) has
highlighted the importance of involving patients in their care by ensuring they understand discussions about blood values, for example by simplifying the term HbA1c to HbA when discussing results. In addition, the use of regular self-glucose monitoring results may aid patients in achieving HbA1c targets and improve their self-confidence and motivation to manage their diabetes (Heisler et al, 2005).

The results from monitoring should be used to inform management. For example, two consecutive measurements of HbA1c above 7 per cent should lead to a review of treatment (Del Prato et al, 2005).

Managing control

Following the publication of the UKPDS there has been widespread agreement that aggressively managing hyperglycaemia, dyslipidaemia and hypertension obtains the best outcomes for patients with diabetes. However, this agreement does not appear to have been translated into effective clinical practice in primary care for all three risk factors. Campbell et al (2005) undertook an observational study of the improvement in the care of three chronic conditions in UK general practice between 1998 and 2003. In the case of diabetes they found that control of serum cholesterol levels and blood pressure has improved significantly. However, the proportion of patients with diabetes whose HbA1c is <7.4 per cent only increased from 37.9 per cent to 39.7 per cent in the five years of the study. This is not a substantial improvement.

Several factors could help to explain Campbell et al’s findings:

- The complexity of managing hyperglycaemia may explain why lower proportions of patients have been achieving glycaemic targets, compared with the proportion achieving lipid and blood pressure targets (Del Prato et al, 2005);
- Diabetes trials, including UKPDS (1998), have shown an inevitable increase in HbA1c in the long term, whereas lipid and blood pressure control can generally be achieved and sustained through polypharmacy;
- There may be greater public awareness of the general health benefits of lowering lipids and blood pressure, compared with the benefits of good glycaemic control (Del Prato et al, 2005).

It is therefore important to ensure that glycaemic control remains the cornerstone of diabetes management. And nurses should promote a holistic approach where the treatment of hyperglycaemia has equal priority to the management of dyslipidaemia and hypertension.

Barriers to control

Poor patient adherence to treatment regimens has been suggested as the greatest barrier to achieving effective glycaemic control. There is also evidence to suggest that adherence to oral antidiabetic agents is lower than with other therapeutic regimes. This may be because of:

- Concerns regarding adverse events associated with oral antidiabetic agents;
- A lack of confidence in the benefits of medication;
- Patients failing to appreciate the seriousness of type 2 diabetes due to the absence of symptoms (Del Prato et al, 2005).

Diabetes is a complex disease and it is important to allow sufficient consultation time to ensure that patients have understood the severity of the disease and its possible complications, the importance of adherence to treatment and the likelihood that this will prevent such complications from occurring. The use of a patient-centred, multidisciplinary team approach to diabetes care has been demonstrated to improve both glycaemic control and patient quality of life (UKPDS, 1998).

Nursing implications

There is clear evidence of the importance of good glycaemic control. However, in practice these targets are often not met (Del Prato et al, 2005; Campbell et al, 2005)

Targets can be open to criticism as being too difficult for patients to achieve, for limiting what they could attain, or for being uneconomic to attain. For practical purposes it can be more helpful to regard clinical targets as ‘assessment levels’ and ‘intervention levels’ (IDF, 2005), while for patients who are unable to reach target glycaemic control levels it is important to continue encouraging them to make even a minimal improvement in their HbA1c (IDF, 2005).