

Self-management of diabetes for the hospitalised inpatient

Niki Robinson

Introduction

The importance of good glycaemic control in reducing the risk of developing the long-term complications of diabetes has been adequately demonstrated through studies such as those of the UK Prospective Diabetes Study Group (1998) and the Diabetes Control and Complications Trial Research Group (1993). This article focuses on the importance of inpatient ward staff utilising the expertise of their diabetes specialist colleagues to monitor and assess the hospitalised patient's ability to self-manage his/her diabetes.

The concept of self-management has become an integral aspect of care for chronic conditions in recent years and is an essential component of diabetes management (Collingsworth et al, 1997).

While there is an abundance of literature regarding self-management, very little appears to have been written regarding its place in the acute care setting. Within the author's experience current practice is fractured – hospital-to-hospital, ward-to-ward and day-to-day. The majority of care for people with diabetes is now managed in the primary care sector (O'Gara, 2000). However, it is estimated that at any given time, 10% of a hospital inpatient population has diabetes (Bhattacharyya et al, 2002; Page and Hall, 1999). In addition to which, people with diabetes are hospitalised twice as often (Lilley and Levine, 1998) and are likely to experience an average length of stay twice that of their counterparts without diabetes (Currie et al, 1996). Often, the diabetes is not the primary reason for the hospital admission (Bhattacharyya et al, 2002) and as a result is often recorded simply as part of the individual's medical history, seemingly irrelevant to their admission and subsequent care. Although people may receive vast quantities of information at diagnosis of their diabetes there is often little follow-up of this information. However, studies have shown that it can take some time for people to accept and integrate their diagnosis into everyday life, by which time much of the

information may be forgotten or misconstrued (Hornsten et al, 2004). Hospitalisation offers an opportunity to assess an individual's knowledge, their current self-management practice, and ongoing diabetes care (Roman and Chassin, 2001) but is currently not utilised as such.

During episodes of acute illness good glycaemic control remains an essential component of diabetes management. Predominantly, illness and/or trauma will elevate blood glucose levels, if not treated appropriately, which can lead to acute metabolic decompensation, such as diabetic ketoacidosis or a hyperosmolar hyperglycaemic state, delayed wound healing, increased risk of infection (Dromgoole, 2005), endothelial cell dysfunction, and oxidative stress predisposing a patient to tissue damage (Clement et al, 2004). In addition, the symptoms of hyperglycaemia itself, which include lethargy, thirst, tiredness, nausea and irritability (Dromgoole, 2005), can impede a patient's recovery.

Would the promotion of the self-management of diabetes in the acute setting improve patient outcome? And is it feasible to implement? The self-administration of medication is one component of self-management and it is this that is discussed within this article.

What is self-management?

Thomas Creer first presented the term 'self-management' in the mid-1970s in relation to asthma management (Creer et al, 1976).

ARTICLE POINTS

1 Self-management is an integral component of diabetes care.

2 At any given time approximately 10% of a hospital inpatient population has diabetes.

3 A hospital admission provides an invaluable opportunity for teaching and learning.

4 It is important for healthcare professionals involved in all aspects of acute care in the hospital setting to be educated in all aspects of self-management of diabetes, or for them to be able to access the expertise available within the specialist teams.

KEY WORDS

- Self-management
- Inpatient
- Diabetes knowledge
- Acute care

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1 Diabetes requires day-to-day decision-making and problem solving by the patient; indeed, it has been reported that diabetes management is 98% self-care.

2 In an era of 'individualised care' the continued practice of the traditional drug round, which allows for little personalisation or patient involvement, appears outdated.

3 The traditional drug round does not identify problems that the patient may have with self-administration of medications on discharge.

4 A large proportion of patients do not adhere to prescribed drug regimens in the management of chronic conditions and, in more than a third, health is actively endangered.

There is a variety of definitions within the literature and most are open to interpretation, and dependent on the person involved. For a healthcare professional, an acceptable definition may be the effective adjustment of lifestyle and medication to maintain tight glycaemic control. However, a definition created following a study asking people with arthritis what self-management meant to them stated that it is:

'A dynamic, active process of learning, trialling and exploring the boundaries created by illness.' (Kralik et al, 2004)

Within the management of chronic conditions, self-management is unavoidable (Coates and Boore, 1998). Diabetes requires day-to-day decision-making and problem-solving by the patient; indeed, Anderson stated that diabetes management is 98% self-care (Anderson, 1995); whether or not it constitutes effective self-management is a separate issue. Interestingly, in a study undertaken to assess whether patients use and maintain their diabetes equipment correctly, 80% of the participants felt confident in their ability to self-manage their diabetes, yet, when assessed, more than 90% demonstrated problems with blood glucose monitoring or insulin administration (Reed et al, 2003). However, the study cohort was self-selecting and overall response was poor: of 560 patients approached only 133 agreed to attend.

Self-administration of medication in the acute care setting

In an era of 'individualised care' the continued practice of the traditional drug round, which allows for little personalisation or patient involvement, appears outdated. Indeed, the inappropriate prescription and timing of medication, and inadequate knowledge among general hospital staff were concerns raised within the National Service Framework for diabetes (NSF; Kerr, 2002).

The traditional drug round does not identify problems that the patient may have with self-administration of medications on discharge; it allows very little opportunity for discussion regarding the effect of and potential side effects of the medication

(Sutherland et al, 1995) and in the case of diabetes management allows for no assessment of self-care practices. These can have a profound effect on an individual's adherence to a drug regimen and glycaemic control.

Knowledge of diabetes medications

Studies have demonstrated a notable lack of knowledge regarding diabetes medication among both patients and healthcare professionals (Browne et al, 2000; Wamae and Da Costa, 1999). Browne et al (2000) found that only 15% of the people with diabetes surveyed knew the correct mechanism of action of oral hypoglycaemic agents. Of healthcare professionals, Browne et al (2000) found that knowledge was fairly consistent among nurses, doctors and pharmacists, with significant deficits in knowledge regarding the action of metformin and acarbose. However, it should be noted that both of these studies had a small sample of healthcare professionals. This lack of knowledge among healthcare professionals has been demonstrated in other studies. Holstein et al (2000) surveyed 310 final year medical students and found that, although physiology knowledge was good, knowledge of diet and the practical aspects of diabetes management were poor. Only 18% of those surveyed correctly recognised that only insulin and sulphonylureas could cause hypoglycaemia whilst metformin and acarbose could not.

Staff education

In general, it is believed that a large proportion of patients do not adhere to prescribed drug regimens in the management of chronic conditions and, in more than a third, health is actively endangered (Sutherland et al, 1995; Vermeire et al, 2003). Lack of knowledge and understanding of the action of medication is one possible reason for this, which could be overcome by encouraging the self-administration of medication while in hospital, but, as the above studies have shown, significant education and training would be needed to update staff knowledge before we could expect them to adequately educate patients.

Importance of implementing self-management in acute care

Traditional drug rounds frequently fail to provide diabetes medication at the appropriate time. Insulin administration is routinely left until the end of the round, as it requires collection from the fridge, and once drawn up or dialled up, checking by a colleague. This appears to be a ritualistic practice as there is no requirement to check other subcutaneous injections and there is no mention of insulin-specific checking procedures within the Nursing and Midwifery Council's (NMC) *Guidelines for the Administration of Medication* (2004). Additionally, if the patient has bought his or her own insulin pen device into hospital it should be stored at room temperature.

As a result of current practice, insulin may be administered up to 2 hours after a meal. The majority of insulin types, with the exception of the newer fast-acting analogues, need to be administered 20–30 minutes pre-meal to achieve optimal glycaemic control (Jerreat, 1999; Gilman, 2001). Similarly, oral hypoglycaemic agents require specific timing with meals to both achieve optimal glycaemic control and minimise their potential side effects (Browne et al, 2000).

Perceived knowledge

Patients who perceive their self-management skills to be adequate may benefit from review. Partanen and Rissanen (2000), in a study of 100 people with type 1 diabetes, found that a significant number had problems with insulin injections or their injection sites, that were not recognised by the individuals prior to the study, which can negatively impact on glycaemic control.

Self-administering for inpatients

Self-administration of medication offers a potential solution to these problems. Both the NMC (2004) and Department of Health (DoH; 2001) have supported their use, as long as appropriate guidelines are in place. The recent Audit Commission report, *A Spoonful of Sugar – Medicines Management in NHS Hospitals* (Audit Commission, 2001), while not specifically advocating self-administration in hospital, did suggest greater involvement of the patient and pharmacist.

While initial trials were undertaken in long-stay environments they have been shown to be effective in acute areas (Bird, 1988). The potential advantages of self-medication include improved timing of medications (Downie et al, 1999), patient empowerment and concordance (Audit Commission, 2001), and a simplified drug round (Collingsworth et al, 1997). Improved adherence – medication taken as directed by healthcare professionals – as a result of self-administration in hospital does not appear to have been proved within the literature (Collingsworth et al, 1997), possibly due to the variety of factors that influence adherence. However, improved knowledge and involvement in decision making can only improve concordance when defined as a medication regimen agreed after negotiation between healthcare professional and patient (DoH, 2001). There also appears to be very little evidence within the literature regarding any reduction in medication errors, which would also seem to be an inherent benefit with this method of drug administration.

The disadvantages of self-medication to date have included over-dosing, under-dosing and non-adherence (Collingsworth et al, 1997). There are also risks with traditional methods of drug administration and these would appear to present a greater risk for patients discharged home with a limited understanding of their medication.

Case example

In its recent report the Audit Commission (2001) estimated that up to 40% of nurses' time is spent administering medication, yet very little of that time appears to be spent in assessing the patient's self-administering ability or knowledge of his/her medication. In one particular instance an elderly patient who had apparently been managing his insulin administration independently prior to admission did not self-administer during his 3-week admission. Once he was fit for discharge he was asked to self-inject but was unable to do so. On review he could describe the injection technique but was unable to perform it. Although it was apparent that he had a degree of cognitive impairment, the loss of routine and daily use of the practical skill of injecting insulin

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4 The disadvantages of self-medication to date have included over dosing, under dosing, and non-compliance; however, these are also risks with traditional methods of drug administration.

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1 Following the implementation of self-administration at the Queen's Medical Centre in Nottingham, a survey reported that 90% of the nursing staff found the system to be more flexible and would not want to return to the 'drug trolley'.

2 To initiate self-medication in the acute setting requires significant training and support from the hospital pharmacy, and the rapid turnover of ward staff and the national shortage of pharmacists can be a significant barrier.

3 With the estimated rise in the prevalence of diabetes over the next years and its associated implications to quality of life, life expectancy and cost to society and the NHS, effective diabetes management must become a routine aspect of inpatient care.

resulted in loss of the skill, delayed discharge and significant distress for the individual. Cognitive impairment is thought to be more common for people with diabetes and hyperinsulinaemia, which have been associated with an increased risk of developing Alzheimer's disease and memory decline (Luchsinger et al, 2004).

Patient perception of self-administering as an acute patient

A study undertaken by Manias et al (2004) sought to determine patients' perceptions of self-administration in the acute setting. Although the sample size was small (n=10), the qualitative nature of the semi-structured interview identified key perceptions of the benefits, which included a reduction in nurses' workload, acknowledgement of patient knowledge, sharing of personal knowledge with healthcare professionals, a reduction in medication errors and improved knowledge of medication regimens.

From the healthcare professional perspective very little appears to be written. Following the implementation of self-administering at the Queen's Medical Centre in Nottingham, Sutherland et al (1995) surveyed the nursing staff involved and reported that 90% found the system to be more flexible and would not want to return to the 'drug trolley'. However, no details of the survey are discussed and no mention is made of the perceptions of the pharmacist or medical staff.

In practice, nursing staff appear to be very resistant to the concept, fearing loss of control with no loss of accountability, a belief shared by the patients interviewed by Manias et al (2004). In one respect the use of self-administration reduces the risk of potential problems by ensuring that the patient is able to safely self-medicate on discharge for which the nurse is potentially accountable.

To initiate self-medication in the acute setting requires significant training and support from the hospital pharmacy, and the rapid turnover of ward staff and the national shortage of pharmacists can be a significant barrier (Audit Commission, 2001). A format for patient assessment, consent, and a detailed protocol must be in place (Downie et al, 1999) as well as adequate storage facilities but the cost implications can be

partially offset by the use of the patient's own drugs (Sutherland et al, 1995).

Conclusion

Diabetes is a complex and chronic condition that requires effective self-management by the individual in partnership with healthcare professionals to prevent both acute and chronic complications and one that can be encountered in all areas of the hospital. Self-administering of medication is only one aspect of self-management in diabetes, and despite the reported poor adherence (Sutherland et al, 1995; Vermeire et al, 2003) this has been reported as the easiest component of self-management (Anderson, 1995).

With the estimated rise in the prevalence of diabetes over the next 10 years and its associated implications for quality of life, life expectancy and cost to society and the NHS (Cradock, 1997), effective diabetes management must become a routine aspect of inpatient care. Enabling patients to self-manage their diabetes in hospital, when appropriate, is an essential component in achieving this.

To effectively enable people with diabetes to continue to self-manage whilst in the hospital setting requires a fundamental change in current practice for the multidisciplinary team. To date, care and management remains largely paternalistic and in periods of acute illness this may remain appropriate. However, patients who are self-managing their diabetes prior to admission should be supported to continue. Self-management should not be seen as 'their doing it themselves' but as a partnership and learning opportunity for all involved.

In a field that is constantly changing it can be difficult for patients and staff to maintain up-to-date knowledge. Support from the diabetes team is an essential component in improving the experience of hospitalisation for both the patients and the staff, and a requirement in terms of clinical governance and NSF standards.

The majority of research regarding diabetes management in hospital appears to have been undertaken outside of the UK and focuses on specific events, for example management of post-myocardial infarction or management in critical care. Whilst many of the principles of these studies can be transferred to the NHS,

further research would be beneficial.

Whether full self-administration systems are in place or not there should be a hospital-wide policy regarding the self-administering of insulin. For patients converted to insulin during their hospital admission (which appears to be an increasing occurrence), discovering on the day of discharge that they are unable to self-administer the insulin is unacceptable. Therefore, it is important for healthcare professionals involved in all aspects of acute care in the hospital setting to be educated in all aspects of self-management of diabetes, or for them to be able to access the expertise available within the specialist teams. This will enable the hospital staff to, in turn, educate the inpatient who was admitted and has diabetes, or has had the condition subsequently diagnosed, in how best to control his/her chronic condition. ■

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