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GENERAL PRACTICE UPDATE

Adherence to medicines in patients with type 2 diabetes

Abstract

Type 2 diabetes is a common chronic condition associated with co-morbid hypertension and hyperlipidaemia. Multiple medicines are usually prescribed to manage these conditions. However, regimens containing multiple medicines are difficult to manage and their necessity may not be understood. As a result adherence can become a problem. This article discusses the impact of multiple medicines on adherence and the way adherence issues can be tackled during general practice consultations.

Keywords

Adherence – diabetes – prescribing – co-morbidity – cardiovascular disease

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Type 2 diabetes (T2D) is associated with premature cardiovascular disease (CVD). About 70% of people with T2D also have hypertension or hyperlipidaemia as a co-morbid condition. The management of T2D can be complex and often multiple medicines are prescribed to manage an assortment of associated conditions. The National Institute for Health and Clinical Excellence (NICE) and randomised controlled trials such as the United Kingdom Perspective Diabetes Study (UKPDS)[1] and the Collaborative Atorvastatin Diabetes Study (CARDS)[2] recommend intense pharmacological management of T2D. While the benefits of multiple medicines are established, the implications for the way that people manage their medicines are not as positive. Research indicates that regimens containing multiple medicines are dissatisfying and difficult to follow.[3] Therefore the implications of complex regimens, which contain multiple medicines for multiple conditions (as is often the case for people with T2D), are an important consideration.

What is adherence?

People with T2D play an active role in the management of their condition(s), which includes the taking of medicines. The term 'adherence', when applied to medicines, describes taking medicines in a way that corresponds with the prescription given by a healthcare professional. This approach to defining medicine-taking behaviour also suggests that medicines are taken because a satisfactory level of information has been provided and there is a willingness to engage with the treatment plan (willingness to engage is a concept important for both the prescriber and those prescribed the medication). Other terms used to describe this behaviour include 'compliance' which is a less patient-centered term and 'persistence' which refers to medicine-taking over an extended period of time.

WHO suggests that over 50% of people do not take their medicines as prescribed

The World Health Organization suggests that over 50% of people do not take their medicines as prescribed.[4] Unfortunately chronic illnesses such as T2D are associated with much lower levels of adherence. Also, adherence in T2D can depend on the type of treatment offered. A systematic review of research found that adherence to regimens containing oral hypoglycaemic agents (OHAs) alone was 36%-87% compared to 54%-81% adherence in insulin-only regimens.[5]

Not adhering to medicines (non-adherence) in T2D includes a range of behaviours which are caused by different factors. For example people with T2D may take medication holidays, consume larger doses after perceiving an increase in symptoms, forget their medicines or reduce their medicine consumption to avoid side-effects. Such examples of non-adherent behaviour can be divided into:

- intentional non-adherence;
- non-intentional non-adherence.[6]

Intentional non-adherence is the result of decision-making and is thought to be driven by perceptions about how necessary a medication may be and concerns about medicines (such as a fear of side-effects).[7] Non-intentional non-adherence reflects a person's ability or skill at medicine-taking. The main reasons for non-intentional non-adherence are forgetting or losing medicines and manual dexterity problems. Therefore, non-adherence can be accidental or the result of a reasoned decision-making process. Furthermore, a person with T2D may report both intentional and non-intentional non-adherence to the same medication at different times.[6]

Adherence to multiple medicines in T2D and CVD

Multiple medicines can lead to poor adherence and, conversely, reductions in the frequency of daily medication doses can improve adherence.[8,9] A Scottish study of 2920 people prescribed OHAs found that one tablet per day led to better adherence in comparison to multiple daily doses.[10] Other studies report that high numbers of angiotensin-converting enzyme inhibitors, beta-blockers and statins are also associated with lower adherence.[11] Thus regimens containing multiple OHAs alongside medicines to manage CVD may be especially susceptible to low levels of adherence.

Research has found that T2D medicines are often proritised over CVD medicines.[12] This study found that the threat of microvascular complications was heightened and T2D was perceived to be a permanent condition requiring long-term intense pharmacological management. For many the threat of macrovascular complications was not immediate and multiple medicines for CVD management were believed to be unnecessary. Many people with T2D did not recognise the necessity of the step-up approach to prescribing CVD medicines. Instead lifestyle modification was believed to be an appropriate prescription for hypertension and hyperlipidaemia management. Lipid-lowering medicines were perceived to be the least important CVD medication prescribed. People with T2D were less concerned when these medicines were missed or forgotten and described testing their need for lipid-lowering medicines through temporary non-adherence or total cessation of medicines. Adherence decisions appear to be driven by characteristics of medicines, the way medicines are prescribed and perceptions about illness: CVD medicines are especially vulnerable.

T2D medicines are often proritised over CVD medicines

This is a concerning finding, as CVD is the largest cause of mortality for people with T2D. It is possible that the value placed on CVD medicines is due to low awareness levels or the need for additional information about macrovascular complications. A US survey assessed awareness of CVD risk among people with diabetes.[13] Those surveyed were more aware of microvascular complications and 68% of people surveyed did not consider CVD to be a serious complication of diabetes. Only 18% of those surveyed cited taking prescription medicines as a method for reducing their cardiovascular risk.

Addressing adherence in general practice

Identifying non-adherence

Identifying non-adherent behaviour can be difficult. A study revealed that doctors who knew their patients for 5 years or more were poor (i.e. no better than chance) at predicting non-adherent behaviour.[14] The solution to this problem can be straightforward; rather than relying on intuition, research suggests that asking people about adherence and their medicines management is an effective way of identifying non-adherence.[15]

Approaching the topic of non-adherence is easiest if conversations about past behaviours and current perceptions of medicines are initiated. Questions such as "many people find it difficult to take these tablets, how do you find it?" or "which medicine do you dislike to take most?" can be used. The objective of this approach is to work towards honest disclosure of perceptions and discussions of past adherence behaviours.

Identifying the type of non-adherence experienced is important, as this will determine the type of intervention required. A person may disclose intentional and non-intentional non-adherence to the same medicines, so a multi-modal approach is a possibility.

Addressing non-intentional non-adherence

A variety of strategies to enhance vigilance can be used to improve forgetting, manual dexterity problems, inattentiveness and other forms of non-intentional adherence. Memory aids, such as Doset boxes and reminders many help those who are prone to forgetting their medicine. Self-monitoring has been suggested to improve non-intentional non-adherence in hypertension,[16] however, the use of self-monitoring in diabetes is debated. Eisen and colleagues suggested that the most important action that a prescriber can take in addressing non-adherence difficulties, such as forgetting, is to select medications that permit the lowest daily prescribed dose frequency".[3] Therefore, combination drugs or slow-release medicine (such as metforminSR) may reduce the regimen complexities that challenge people with T2D.

Addressing intentional non-adherence

Finding solutions to intentional non-adherence can be problematic, as this type of adherence involves a decision not to take a medicine as prescribed. Adherence cannot be forced and people can often be resistant to overt persuasion techniques. However, exploring the beliefs behind decisions not to take medicines as prescribed can be a way of ensuring that decisions are not made based on misinformation or false premises. Beliefs about treatment are key to understanding adherence decisions; thus beliefs can be psychological barriers to improved health. This approach may include asking people about their worries or feelings of sadness and dissatisfaction.

Prescribers are faced with the task of acknowledging, understanding and then acting upon beliefs. One of the most accessible methods of action is to provide information tailored to beliefs or discussions surrounding adherence. For example, communicating CVD risks is vital, especially as the severe consequences of hypertension and hyperlipidaemia are often poorly understood by people with T2D. Discussing long-term healthcare goals, re-evaluating treatment aims and developing a plan are additional tools for addressing decisions and beliefs.

The severe consequences of hypertension and hyperlipidaemia are often poorly understood by people with T2D

Addressing emotional concerns is important, and recognising any need for referral is vital. This is especially important because the rate of psychological morbidity is higher for people with T2D than it is in the general population, and managing co-morbid psychiatric conditions on top of co-morbid physical conditions is possibly too complex and difficult for a typical time-limited GP consultation.

Uncovering beliefs about treatment and illness, providing additional information and addressing emotional distress, may positively influence adherence. However, the benefits of this approach may extend to enhancing communication, improving the therapeutic relationship, increasing patient satisfaction or leading to a change in prescribing practices (to match patient preferences) where a clinically viable alternative is available.

New NICE recommendations on adherence

NICE recently published guidelines as part of a consultation on medicine concordance and adherence.[17] The draft consultation suggests that prescribers should aim to meet the wishes of their patients, even if this means prescribing a sub-optimal regimen; however, informed consent is vital. The advice given to prescribers is to:

> *"Be aware that a shared decision may mean an agreement not to prescribe a medication or for the patient to stop taking a medication. If in the healthcare professional's view this may have an adverse effect, then this must be recorded".*[17]

Shared decision-making and informed adherence are integral to this approach. The prescriber's role is to provide information that will enhance knowledge about treatment, promote understanding and allow for a informed adherence decision to be made. To identify information and support needs, existing beliefs about treatment and illness should be considered. For example, unlike painkillers, medicines used to treat T2D do not lead to immediate symptom relief (as T2D is usually asymptomatic). The lack of immediate benefits and symptom relief may lower motivation to adhere and levels of medicine-taking may fall over time. Understanding the way a person appraises their illness is important for understanding when additional information or counselling is required. Providing information in line with, or tailored to beliefs (particularly beliefs based on false premises), will ensure that any decision made is fully informed.

Summary

Adherence to T2D medicines is often complicated by co-morbid hypertension and hyperlipidaemia management. Evidence indicates that CVD management is not a priority for some people with T2D. Adherence cannot be forced but, where decisions not to take medicines are apparent, healthcare providers have the opportunity to ensure that non-adherence is a fully informed decision. Facilitating informed decision-making can allow people with T2D to take full control and responsibility for the way that their medicines are managed. ■

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Practice points

- **Adherence is the extent to which medicines are taken as prescribed.**
- **Non-adherence may be unintentional (i.e forgetting) or intentional (driven by decisions).**
- **Research suggests that CVD is often undervalued; as a consequence CVD drugs are susceptible to non-adherence decisions.**
- **Asking about non-adherence and understanding treatment and illness beliefs are vital.**
- **Providing information tailored to beliefs can change decisions and lead to adherence (though in some cases informed non-adherence will be achieved).**