Adherence to diabetes care

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Mrs Smith has diabetes, hypertension, two young children, and an elderly mother. Her husband works abroad. You have prescribed metformin, glarglazide, simvastatin, and ramipril. Her HbA1c, blood pressure and cholesterol are all too high. Is she taking her tablets? ‘Ooh yes, doctor,’ she says. Would you increase her medication?

As she later told the nurse, Mrs Smith doesn’t want to upset her doctor. In reality she forgets most of her tablets, most days. She means to take them, but her husband is away, her mother has dementia, and life is hectic.

Have you ever taken prescribed medication exactly according to instructions? At the right time, in the right way, without missing a single dose?

• Adherence, compliance or concordance?1
  • Adherence: ‘Persistence in a practice or tenet; steady observance or maintenance.’
  • Compliance: ‘The acting in accordance with, or the yielding to a desire, request, condition, direction, etc; a consenting to act in conformity with; an acceding to; practical assent.’
  • Concordance: ‘The fact of agreeing or being concordant: agreement, harmony’ or ‘Accord, concord, agreement; amicable relations (between parties).’

Concordance is used to imply shared goals. NICE2 prefers ‘adherence’. So does WHO:3
  • ‘The extent to which a person’s behaviour – taking medication, following a diet, and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provider.’

The health care professional (HCP) and the patient should understand the problem and agree the best treatment. Both have responsibilities for following the agreed plan which should include contact methods for discussing concerns and a review date. How can HCPs do this well with limited time and resources? Staff are under immense pressure. Yet, time now will save time later.

Health toll of non-adherence

Does it matter if patients don’t adhere to treatment? Yes! Of course medication won’t work if it isn’t taken. But how adherent do patients have to be for each medication to work? Many studies accept >85% or >90% adherence. We don’t know the right figure, and we should. The issue is serious. In a meta-analysis4 of 21 studies of patients with various conditions, mortality was lower in patients who adhered to beneficial treatment, and in those adhering to placebo. This implies that adherers are people who look after their health generally. Patients who adhered to harmful treatment had a higher mortality.

So what are we asking people with diabetes to do? To eat a healthy diet (and, sometimes, to count dietary components), exercise regularly, and not smoke. To take, and often self-adjust, oral or injectable medication; test finger-prick blood glucose; record measurements; and attend appointments. Diabetes care is complex and patients are busy people.

What happens in the general population? Healthy lifestyle measures have been well publicised in Western countries. A US study5 reviewed adherence to healthy lifestyle habits in the National Health and Nutrition Examination Survey. After 16 years, weight rose, numbers taking regular exercise fell, smoking rates were unchanged, far fewer were eating ≥5 fruits and vegetables, and alcohol intake increased. Adherence to all five healthy habits fell from 15% to 8%. The prevalence of diabetes rose from 7.9% to 10.5%.

Overweight people with diabetes usually lose weight in the early months as worried patients adhere to advice, with a subsequent rise as anxiety falls and it all proves too difficult. Studies in people with diabetes show that long-term adherence to exercise programmes varies between 10 and 80%.6

The National Diabetes Audit 2012–137 shows that 33.7% of patients had glucose, blood pressure (BP) and cholesterol levels within target in 2010–11 vs 35.9% in 2012–13. (The difference from previously reported figures is due to adjusting the BP target from <140/80 to ≤140/80mmHg suggesting digit preference in measurement.) But only one in three patients had good risk factor control. This reflects a need for better adherence by patients and HCPs. Most evidence-based diabetes care comes from studies in which patients had more intensive contact than in the real-world.

What do most people with diabetes want? To get on with their own lives, in their own way, with minimal hassle, while keeping well and avoiding complications.

In the DARTS/MEMO study8 only 31% prescribed sulphonylureas alone had ≥90% adherence, and 34% of those prescribed metformin alone. For those on sulphonylureas alone, each increase in the daily tablets numbers or co-medication worsened adherence.

A meta-analysis9 showed 36–93% adherence to oral hypoglycaemic therapy. Factors influencing this are shown in Box 1.

Factors shown to improve adherence to medications include:

- Reduced therapeutic complexity
- Fixed dose combinations
- Reduced frequency of administration
- Medications that are weight neutral or weight reducing
- Medications with glucose-dependent glucose-lowering effect (reducing hypoglycaemia)
- Education and increased knowledge
- Economic benefit outweighing cost
- Improved continuity of care
- Increased communication through websites and electronic records

Box 1. Factors shown to improve adherence to medications taken by patients with type 2 diabetes2

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One study showed a 0.1% fall in HbA1c with every 10% increase in adherence to oral hypoglycaemic medication.

Electronic monitoring showed mean medication adherence of 79.1% for once-daily regimens, 65.6% for twice-daily regimens, and 38.1% for three-times daily dosing regimens (p<0.05). Combined preparations improve adherence. In patients with cardiovascular disease, fixed dose combinations of aspirin, statin, and two hypotensive drugs improved adherence from 65% to 86% while reducing cholesterol and BP. Poorer adherers at baseline showed larger benefits. Other polypill studies have shown similar results.

In summary

Patients are people, and people are human. Adhering to a healthy lifestyle and lifelong medication is challenging. We should do all we can to ensure that people with diabetes understand why a particular treatment plan is advised, and how it could help them. We must make it much easier for patients to take advantage of evidence-based diabetes care.

Dr Rowan Hillson, MBE, MD, FRCP, National Clinical Director for Diabetes 2008–2013

References